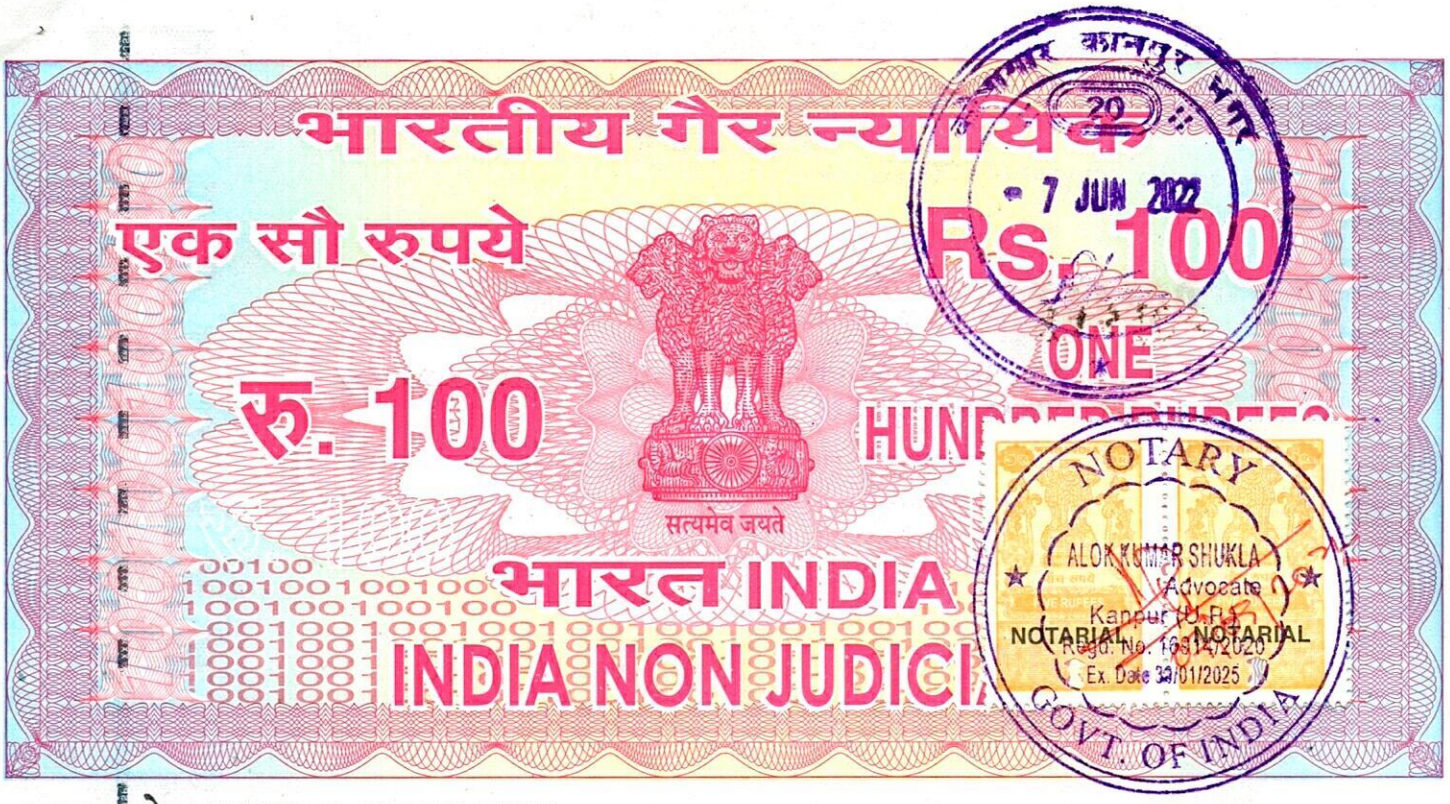

उत्तर प्रदेश UTTAR PRADESH

FW 745850

NOTARY
ALOK KUMAR SHUKLA
Advocate
Kanpur (U.P.)
Regd. No. 16814/2020
Ex. Date 30/01/2025
GOVT. OF INDIA

Memorandum of Understanding ("MOU")

This MOU is made and entered into on this 13th day of Sept. 2022 ("**Effective Date**") by and between

Notary

IITK Foundation for Advanced Continuing Education & Training (hereinafter referred to as **"IFACET"**) a company established u/s 8 of the Companies act 2013 by ***Indian Institute of Technology, Kanpur***, *a research and educational institution of national importance established under the Institute of Technology Act, 1961, enacted by the Parliament of Republic of India, registered under the Societies Registration Act 1860, having its office at P.O. IIT Kanpur, Kalyanpur, Kanpur, UP, India (herein referred to as "**IITK**"),* in the year 2021, with its Registered Office at IME Building, Indian Institute of Technology, Kanpur- 208016 ("**IFACET"** which term shall, unless it be repugnant to the subject or context thereof, include its successors-in-interest and permitted assigns) of the **One Part**

AND

Notary

Chhatrapati Shahu ji Maharaj University, established in 1996 initially as the Kanpur University when Agra University was split into Agra and Kanpur universities and later named as Chhatrapati Shahu ji. It is administered under state legislature of the government of Uttar Pradesh (herein referred to as "**CSJMU**") as of the **Second Part**

Whereas

A. CSJMU and IITK have an existing MOU dated 19th July 2019 wherein CSJMU requires support for increasing the placement of students by both training their faculty and students
B. E & ICT Academy (hereinafter referred to as EICTA or Academy) established by IITK as a joint initiative of Ministry of Electronics & Information Technology (hereinafter referred to as **MeitY**).
C. IFACET is designated to be sole and exclusive entity assigned by IITK for all operational & program delivery work of EICTA, IITK.
D. CSJMU is a public state university. It is one of the largest universities of Asia catering to urban and rural students offering professional and academic courses in disciplines of Arts, Science, Commerce, Law, Engineering, Life Sciences & Biotechnology, Computer Applications, Management and Medicine.
E. Whereas CSJMU has identified the requirement of training/teaching the students in the latest technology such as "Artificial Intelligence, Machine Learning and Data Science", or such similar named courses for its students.
F. EICTA-IITK has agreed to design and deliver the same through IFACET.
G. IFACET is committed to appoint a Single Point of Contact (SPOC) for smooth functioning of the course at CSJMU and for any redressals.

Notary

Details of the Course(s) to be delivered

CSJMU has decided on the course "**Fundamentals of AI, ML & Data Science**" for their students. The delivery of the course(s) by IFACET includes this course but not limited to and may include any other courses and programs which are found to further the objectives of CSJMU and IITK.

Year of Study & Semester	: As communicated by CSJMU
Start Date	: As decided by mutual consent
Term of Agreement	: 5 Years from the agreement date, renewable with mutual consent for another five years
Mode of delivery	: Physical/Offline augmented by Live-online/Hybrid.
Course Structure	: Given in Annexure A Or any other course structure defined from time to time

Notary

CSJMU to provide	IIT K to provide
1) Infrastructure for classrooms as per final decision. 2) Computer Lab with access to computers or laptops for each student undergoing the course 3) Provide the list of students along with their Roll Nos. for each semester who would be undergoing the course agreed upon 4) Ensuring all students register with the IITK promoted website for smooth delivery of course 5) Ensuring attendance of the students 6) Ensuring all students take quizzes and exams 7) Provide incidentals (snacks/tea/coffee) for the Faculty	1) Course Structure for each course that is agreed upon between CSJMU and IITK 2) Delivery of the Course through trained Faculty certified by IIT Kanpur 3) Provide each student with an exclusive login and password 4) Provide access to exclusive PORTAL for accessing quizzes, exams. https://ifacet.iitk.ac.in/csjmu 5) Provide free Self-Paced programs to enhance learning 6) Evaluate and grade the students and provide grades to CSJMU as per University Norms

Financials

1. A standard fixed cost of **Rs 15 Lakhs (Rupees Fifteen lakhs only) plus GST** per **course** per **semester**.
2. Maximum number of students to be less than or equal to 500
3. For over and above this number (500), pro-rata fees per student to be charged.
4. All payments are to be made in advance to

Account Name	: IITK Foundation For Advanced Continuing Education & Training
Account Number	: 50100514867923
Bank Name	: HDFC Bank
IFSC code	: HDFC0000127
PAN Number	: AAGCI4603L
GST Number	: 09AAGCI4603L1ZE

Governing Law and Venue

In case of any dispute, the same shall be referred to the Director, IIT Kanpur, and Vice Chancellor, CSJMU Kanpur, and their decision in this regard will be final and binding on both parties.

Indian Institute of Technology , Foundation for Advanced Continuing Education & Training, Kanpur

By: B.V. Phani

Name: Dr. B V Phani

Title: Director- IFACET

Date: 13.09.2022

In the presence of:

Witness:

Name: ARKS SRINIVAS

Chhatrapathi Shahu ji Maharaj University, Kanpur

By: vinay kumar pathak

Name: Dr. Vinay Kumar Pathak

Title: Vice-Chancellor

Date: 13.09.2022

In the presence of:

Witness

Name: Prof. Sudhir K. Awasthi

Certified that this documents presented affidavit sworn before me on ..... by shri C.S.J.M. University, Kanpur The Conents have been read over and explained to him who is identified by Shri .....

Alok Kumar Shukla Advocate (Notary Govt. of India) Kanpur (U.P.)

Annexure A

Unit 1: Fundamentals of Data Science and Artificial Intelligence for Humanities

1. Data Science, Data Analytics, Artificial Intelligence, ML & DL
    a. Fundamentals of Data Science for humanities
    b. Fundamentals of Data Analytics for humanities
    c. Fundamentals of Artificial Intelligence for humanities
    d. Fundamentals of Machine Learning and Deep Learning for humanities
    e. Common AI Terminologies
2. Defining Data Science for Humanities
    a. What is Data Science?
    b. There are many paths to data science
    c. What is the cloud?
    d. Data Science: The job of the 21st century
3. What do data science people do?
    a. A day in the life of a data science person
    b. Data Science Tools and Technology
4. Data Science and AI in Different Sectors
    a. Data Science and AI in Fine Arts
    b. Data Science in Law Health
    c. Data Science in Hotel Management
    d. Data Science in Life Sciences and Bio Technology
5. Fundamentals of Data Science Methodology
    a. From Problem to Approach
    b. From Requirements to collection
    c. From understanding to Preparation
    d. From modelling to Evaluation
    e. From deployment to feedback

Unit 2: Fundamentals of Machine Learning and Python

6. Machine Learning Introduction
    a. Types of Machine learning
    b. Splitting the dataset into training and test dataset
    c. Error metrics and validation techniques
    d. Linear Regression
    e. Decision Tree Classification
    f. Visualizing High Dimensional Data using t-SNE over GUI
7. Machine Learning Fundamentals
    a. Introduction to Machine Learning
    b. Linear Regression
    c. Classification
    d. Regression
    e. Sampling and Bootstrap
    f. Model Selection
    g. Tree Based Models
    h. Unsupervised Learning
    i. Classification Metrics
8. Python Foundation for Data Science
    a. Introduction to Python
    b. Understanding Operators
    c. Variables and Data Types

d. Conditional Statements
e. Looping Constructs
f. Functions
g. Data Structure
h. Lists
i. Dictionaries
j. Understanding Standard Libraries in Python (Pandas, Numpy, Etc)
k. Algorithms (Searching, Sorting, Recursion)
l. Object-Oriented Programming
m. Exception Handling

9. Mathematical computing using NumPy
    a. Statistical Features (Box plot, variance, mean, mode, and etc)
    b. ETL and Data Processing
    c. Handling missing data
    d. Handling Categorical data
    e. Understand relational data and methods for joining data frames.
    f. Reshape data using the NumPy package.
    g. Hypothesis Testing - t-test, ANOVA, Chi-square
    h. Feature transformation: Scaling, normalization, etc

Unit 3: Exploratory Data Analysis (EDA) using Python

10. Data Manipulation with Pandas
    a. Introduction
    b. Finding Datasets
    c. Pandas vs Numpy
    d. Creating Dataframe
    e. Saving and Serialising
    f. Inspecting Dataframe
    g. Visualizing 1D distributions
    h. Visualizing 2D distributions
    i. Higher Dimension Visualizations
    j. Slicing and Filtering
    k. Replacing and Thresholding
    l. Removing and Adding Data
    m. Grouping
    n. Merging
    o. Time Series Data – Reindexing, Resampling, Rolling Functions
11. Data Visualization with Python
    a. Deal with missing data.
    b. Introduction to Data Visualization
    c. Line Chart, Scatterplots, Box Plots, Violin Plots
    d. Histograms, Heat maps and Clustered Matrices
    e. Correlation
    f. Visualization using Excel and Tableau
12. Machine Learning Implementation Steps
    a. ML Strategy
    b. Single Number Evaluation Metric
    c. Train/Dev/Test Distributions
    d. Improving Model Performance
    e. Error Analysis
    f. Training and Testing on Different Distributions
13. Data Collection for Machine Learning

Unit 4: Supervised Learning vs Unsupervised Learning

14. Concept of Supervised and Unsupervised ML
15. Practical Implementation of Supervised ML Algorithm
    a. Model Evaluation and Data Splitting
    b. Introduction to Parametric Models and Linear Regression
    c. Implementing Linear Regression
    d. Implementing Logistic Regression
    e. The Bias Variance Trade Off
    f. Implementing Decision Trees
    g. Implementing K-Nearest Neighbor
16. Practical Implementation of Unsupervised ML Algorithm
    a. Market Basket Analysis
    b. Curse of Dimensionality
    c. Approaches to Dimensionality Reduction
    d. PCA
    e. Implementing Clustering
17. Data Preparation for ML using Data
    a. Ability to perform EDA using SQL
    b. Ability to perform EDA using python functions
    c. Ability to perform EDA using Excel
    d. Ability to draw hypothesis by analysing EDA outcomes
18. Feature Selection for ML
    a. Ability to create time-based features
    b. Ability to create relationship-based features
    c. Ability to create frequency-based features
    d. Ability to create features using algorithms
    e. Ability to identify important features

Unit 5: Fundamentals of Deep Learning and Neural Network

19. Introduction to Deep Learning
    a. What is Deep Learning and how it is different from Machine Learning
    b. Artificial Neural (Perceptron)
    c. Train a perceptron
    d. Backpropagation Algorithm
    e. Regression using Neural Networks
20. Introduction to Neural Networks
    a. What is a neural network
    b. Binary Classification
    c. Logistics Regression
    d. Logistics Regression Cost Function
    e. Gradient Descent
21. ANN with Tensorflow
    a. Forward Propagation
    b. Activation Functions
    c. Multiclass Classification
    d. ANN for Image Classification
    e. ANN for Regression