Jodhpur Institute of Engineering & Technology
SYLLABUS
Branch: CSE (AI and ML)

Syllabus - VI Semester
6AIML4-21: Data Mining and Predictive Modelling Lab

Credits: 1.5   Max. Marks: 75 (IA:45, ETE: 30)

0L+0T+3P   End Term Exam: 3 Hours

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S.No.	Objectives
1	Demonstration of pre-processing on dataset choose any data from Kaggle.com
2	Demonstration of classification rules process on dataset using ID3 and J48 algorithm.
3	Implement the classification rules process on car dataset using Naïve Baye's algorithm in Weka explorer.
4	Demonstration of classification rule process on dataset using simple K-means algorithm in weka explorer.
5	Build a Neural Network model to process Diabetic diagnosis dataset (https://www.kaggle.com/datasets/mathchi/diabetes-data-set)
6	Demonstration of classification on dataset diabetic and car (both taken from Kaggle.com) using decision table algorithm in weka explorer.
7	Demonstration of association rule using dataset diabetic diagnosis (taken from Kaggle.com) using apriori algorithm in weka explorer.
8	Demonstration of classification on dataset choose any data from Kaggle.com
9	Demonstration of clustering on dataset choose any data from Kaggle.com
10	Demonstration of pre-processing on dataset choose any data from Kaggle.com

Suggested References/Books:

1.Ian H. Witten & Eibe Frank, "Data Mining: Practical Machine Learning Tools and Techniques", 2005 Elsevier Inc.

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Syllabus - VI Semester
6AIML4-22: Natural Language Processing Lab

Credits: 1.5   Max. Marks: 75 (IA:45, ETE: 30)
0L+0T+3P   End Term Exam: 3 Hours

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S.No.	Objectives
1	Convert the text into tokens
2	Find the word frequency
3	Demonstrate a bigram language model
4	Demonstrate a trigram language model
5	Generate regular expressions for a given text.
6	Perform Lemmatization
7	Perform Stemming
8	Implement RNN for sequence labeling
9	Build a Chunker
10	Find the synonym of a word using WordNet
11	Implement semantic role labeling to identify named entities
12	Translate the text using First-order logic
13	Implement RNN for sequence labelling
14	Implement POS tagging using LSTM
15	Word sense disambiguation by LSTM/GRU

Suggested References/Books:
1. Jurafsky, D. and J. H. Martin, Speech and language processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition (2nd Edition). Prentice-Hall, 2008
2. Natural Language understanding by James Allen, Pearson Education 2008
3. NLP: A Paninian Perspective by Akshar Bharati, Vineet Chaitanya, and Rajeev Sangal, Prentice Hall 1995
4. Natural language processing in Prolog by Gazdar, & Mellish, Addison-Wesley 1989

Jodhpur Institute of Engineering & Technology
SYLLABUS
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Syllabus - VI Semester
6AIML4-23: Digital Image Processing Lab

Credits: 1.5   Max. Marks: 75 (IA:45, ETE: 30)
0L+0T+3P   End Term Exam: 3 Hours
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S.No.	Objectives
1	Write a program to read 'cameraman.tif' greyscale image, reduce the size to 50%and save the reduced size image with .jpg extension.
2	a). Write a program to read 'cameraman.tif' greyscale image, convert this image into Black and White (Binary) image. b). Write a program to read 'cameraman.tif' greyscale image, convert this image into negative image.
3	Write a program showing RGB colour channels of a coloured image in its own colour.
4	Write a program to show geometric transformations of an Image. E.g. (Rotated by 45 degrees, Resized to 50%, Translated by (50, 50), Sheared by factor 0.5, Affine Transformation.
5	Write a program for Contrast stretching of a low contrast image by Histogram Equalization.
6	Write a program to display of(1-D&2-D)FFT of an image
7	Write a program to compute Mean, Standard Deviation of the given Image.
8	Write a program to add noise in the given image and remove the noise by Mean and Median filtering.
9	Write a program to implement a sharpening filter to detect edges of an image. (Prewitt and Sobel)
10	Write a program that demonstrates various image restoration techniques aimed at improving the quality of degraded images.
11	Write a program to show effect of Image Intensity slicing technique in image enhancement.
12	Project based on algorithms studied in syllabus.

Suggested References/Books:

1. Rafael C Gonzalez, Richard E Woods, "Digital Image Processing", 4th Edition, Pearson, 2018.
2. Kenneth R. Castleman, Digital Image Processing Pearson, 2006."

3: Deep Learning with Python, Second Edition by François Chollet
4.Beginning with Deep Learning Using TensorFlow: A Beginners Guide to TensorFlow and Keras for Practicing Deep Learning Principles and Applications by Mohan Kumar Silaparasetty

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SYLLABUS
Branch: CSE (AI and ML)

Syllabus - VI Semester
6AIML4-24: Deep Learning Lab

Credits: 1.5   **Max. Marks: 75 (IA:45, ETE: 30)**
0L+0T+3P   **End Term Exam: 3 Hours**
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S.No.	Objectives
1	Demonstration and implementation of Shallow architecture, using Python, Tensorflow and Keras.
2	**Tools/Resources:** Google Colab, Cloning GitHub repository, Upload Data, Importing Kaggle's dataset.
3	**Digit Classification**: • Neural network to classify MNIST dataset
4	**Convolution Neural Network application using Tensorflow and Keras:** • Classification of MNIST Dataset using CNN
5	**Convolution Neural Network application using Tensorflow and Keras:** • Face recognition using CNN
6	**Image denoising (Fashion dataset) using Auto Encoders :** • Handling Color Image in Neural Network aka Stacked Auto Encoders (Denoising)
7	Text processing, Language Modelling using RNN.
8	Time Series Prediction using RNN.
9	Sentiment Analysis using LSTM .
10	Image generation using GAN.

Suggested References/Books:
1. Rafael C Gonzalez, Richard E Woods, "Digital Image Processing", 4th Edition, Pearson, 2018.   2. Kenneth R. Castleman, Digital Image Processing Pearson, 2006."
3: Deep Learning with Python, Second Edition by François Chollet   4.Beginning with Deep Learning Using TensorFlow: A Beginners Guide to TensorFlow and Keras for Practicing Deep Learning Principles and Applications by Mohan Kumar Silaparasetty