OPEN EDUCATIONAL RESOURCE

Course Code: INT422

Course Tittle: DEEP LEARNING

L.T.P: 3.0.0 **Credit: 3**

Course Code	Course Title	Unit mapped	Broad topic/Sub Topic	OER Type	Title of OER	*%age unit mapped with OER (approx)	Source URL
INT422/ DEEP LEARNING		Unit 1	Building Models with TensorFlow	Weblink	TensorFlow basics, Install TensorFlow 2, Introduction to Tensors, tf.rank, Introduction to graphs and tf.function, Introduction to Variables, tf.keras.optimizers.Optimizer, transforming tensors as multidimensional data arrays, TensorBoard: TensorFlow's visualizatio	100%	https://www.tensorflow.org/guide/basics, https://www.tensorflow.org/install, https://www.tensorflow.org/guide/tensor, https://www.tensorflow.org/api_docs/python/tf/rank, https://www.tensorflow.org/guide/intro_to_graphs, https://www.tensorflow.org/guide/variable, https://www.tensorflow.org/api_docs/python/tf/keras/optimizers/Optimizer, https://subscription.packtpub.com/book/data/9781787125933/14/ch14lvl1sec92/transforming-tensors-as-multidimensional-data-arrays,

				n toolkit, Introduction to Deep Learning, Top 25 Deep Learning Applications Used Across Industries		https://www.tensorflow.org/tensorboard, https://www.geeksforgeeks.org/introduction-deep-learning/, https://www.simplilearn.com/tutorials/deep-learning-tutorial/deep-learning-applications
	Unit 2	Building Models with Keras	Weblinks	Introduction to keras, Keras installation, keras layers and models, building a regression model, image classification with keras, multi-layer Perceptron learning for classification, building text classification model, overfit and underfit, save and load model, hyperparameter tuning	100%	https://keras.io/about/ https://keras.io/getting_started/ https://keras.io/api/layers/ https://keras.io/api/models/model/ https://www.tensorflow.org/tutorials/keras/regression https://keras.io/examples/vision/image_classification_from_scratch/ https://keras.io/examples/vision/mlp_image_classification/ https://keras.io/examples/nlp/text_classification_from_scratch/ https://www.tensorflow.org/tutorials/keras/overfit_and_underfit https://www.tensorflow.org/tutorials/keras/save_and_load https://keras.io/api/keras_tuner/hyperparameters/
	Unit 3	Classifying	Weblinks	Convolution	100%	https://pyimagesearch.co

		images with deep convolutional neural networks		al Neural Networks (CNNs) and Layer Types, Calculate output size of Convolution, 2-D Convolution Compute 2-D discrete convolution of two input matrices, Convolutional Neural Network (CNN), Transfer learning and fine-tuning, Data augmentation, Image segmentation		m/2021/05/14/convolutional-neural-networks-cnns-and-layer-types/ https://iq.opengenus.org/output-size-of-convolution/#:~:text=Output%20height%20%3D%20(Input%20height%20%2B,%2F%20(stride%20width)%20%2B%201 https://in.mathworks.com/help/vision/ref/2dconvolution.html https://www.tensorflow.org/tutorials/images/cnn https://www.tensorflow.org/tutorials/images/transfer_learning https://www.tensorflow.org/tutorials/images/data_augmentation https://www.tensorflow.org/tutorials/images/segmentation
	Unit 4	Autoencoders and Pre-trained CNN	Weblinks	Autoencoders -Machine Learning, Compression of data using Autoencoders¸Variational AutoEncoders	100%	https://www.geeksforgeeks.org/auto-encoders/ https://theailearner.com/2019/01/01/compression-of-data-using-autoencoders/ https://www.geeksforgeeks.org/variational-autoencoders/
	Unit 5	Modeling sequential data using recurrent neural networks	Weblink	The Sequential model, A Brief Overview of	95%	https://www.tensorflow.org/guide/keras/sequential_model, https://www.analyticsvidhya.com/blog/2022/03/a-

				Recurrent Neural Networks (RNN), How to Choose the Right Activation Function for Neural Networks, Implementing a multilayer RNN for sequence modeling in TensorFlow, Text classification with an RNN, Text generation with an RNN, Time series forecasting, tf.keras.layers.LSTM, Sequence Classification with LSTM Recurrent Neural Networks in Python with Keras, Stacked LSTM for Classification		brief-overview-of-recurrent-neural-networks-rnn/, https://towardsdatascience.com/how-to-choose-the-right-activation-function-for-neural-networks-3941ff0e6f9c#:~:text=In%20RNN%20neural%20network%20models,activation%20functions%20are%20non%2Dlinear, https://www.oreilly.com/library/view/python-machine-learning/9781787125933/ch16s03.html, https://www.tensorflow.org/text/tutorials/text_classification_rnn https://www.tensorflow.org/text/tutorials/text_generation https://www.tensorflow.org/tutorials/structured_data/time_series https://www.tensorflow.org/api_docs/python/tf/keras/layers/LSTM https://machinelearningmastery.com/sequence-classification-lstm-recurrent-neural-networks-python-keras/ https://www.kaggle.com/code/kmader/stacked-lstm-for-classification
	Unit 6	Generative Adversarial Networks	Weblink	Generative Adversarial Network (GAN), CycleGAN,	100%	https://www.geeksforgeeks.org/generative-adversarial-network-gan/ https://www.tensorflow.

				Adversarial example using FGSM		org/tutorials/generative/cyclegan https://www.tensorflow.org/tutorials/generative/adversarial_fgsm
****Average % age of total syllabus mapped**	**--**	**--**	**--**	**--**	**Avg. =99%**	**--**