COURSE TRACKER

EVA4 will be divided into 2 phases. The course outline is as shown below

Phase	Topic	Details	Points	Week
Phase 1	**Background & Basics**	Machine Learning Intuition, Background & Basics	200	Week 1
Phase 1	**Python Basics**	Python 101 for Machine Learning	500	Week 1 & 2
Phase 1	**Neural Network Concepts**	Convolutions, Pooling Operations & Channels	500	Week 2
Phase 1	**Pytorch Basics**	Pytorch 101 for Vision Machine Learning	500	Week 2 & 3
Phase 1	**First Neural Networks**	Kernels, Activations and Layers	500	Week 3
Phase 1	**Architectural Basics**	A session where we go through 9 different steps before we arrive at the final architecture "suitable for our objective"	1000	Week 4
Phase 1	**Receptive Field**	The CORE fundamental concept behind VM Program	1000	Week 5
Phase 1	**BN, Kernels & Regularization**	Mathematics behind BN, Kernel Initialization and Regularization	1000	Week 6
Phase 1	**Back-prop & Advanced Convolutions**	Advanced Convolutions & Pooling operations with Code examples and usage	1000	Week 7
Phase 1	**Data Augmentation**	Advanced Image Augmentation Techniques, benchmarks against different techniques	1000	Week 8
Phase 1	**DNN Interpretability**	Class Activation Maps - The most powerful debugging tool at your disposal	1000	Week 9
Phase 1	**Advanced Training Concepts**	Optimizers, LR Schedules, LR Finder & Loss Functions	1500	Week 10
Phase 1	**Super Convergence**	Cyclic Learning Rates, One Cycle Policy, and TFRecords	2000	Week 11
Phase 1	**ResNets**	Training ResNet for TinyImageNet from scratch	4000	Week 12 & 13
Phase 1	**Inception and DenseNet**	Understanding Inception and DenseNet Architectures	-	Week 13
Phase 1	**Object Detection Concepts**	Understanding YOLOV2 Loss Function	2000	Week 14
Phase 1	**Object Detection Training**	Implementing Object Detection Training & Transfer Learning	4000	Week 14 & 15
Phase 1	**MaskRCNN Family**	RCNN, Fast-RCNN, FasterRCNN & MaskRCNN	-	Week 15
PHASE 2 QUALIFICATION EXAM - 20000Pts				
Phase 2	**MobileNet & Other Edge DNNs**	Training a DNN for EDGE Deployment from scratch. Understanding MobileNets and ShuffleNets	1000	Week 1
Phase 2	**Deploying over AWS**	Deploying your own Edge model on AWS Lamba	1000	Week 2
Phase 2	**Object Tracking and Stabilization for Face Recognition**	Implementing Object Tracking and Stabilization, OpenCV and DLIB, for face recognition and others	1000	Week 3
Phase 2	**Advanced Loss Functions**	A Beautiful journey through advanced loss functions and their behaviors	1000	Week 4
Phase 2	**Generative Adversarial Networks**	GAN fundamentals, types and training one from scratch	2000	Week 5 & 6
Phase 2	**AutoEncoders and VAEs**	AE/VAE fundamentals, KL Divergence and Training	-	Week 6
Phase 2	**UNET and AutoEncoder Architectures**	Trainng a model for Monocular Depth (or Semantic Segmentation or Human Pose Estimation) from scratch	4000	Week 7 & 8
Phase 2	**Word2Vec & Neural Word Embeddings**	A small deviation into the world of NLP	-	Week 8
Phase 2	**RNN and LSTMs**	The intuition behind RNNs and LSTMs, and trining them	2000	Week 9
Phase 2	**Attention Mechanisms & Memory Networks**	Attention & augmented RNNs. And why "Attention is all we need"?	2000	Week 10
Phase 2	**Reinforcement Learning Basics**	Basics and Bellman Equation	2000	Week 11
Phase 2	**RL Common Approaches**	Deep-dive into DQNs and A3Cs	2000	Week 12
Phase 2	**Policy Gradients**	Policy Gradient Methods and Continuous Action Spaces	2000	Week 13
Phase 2	**DDPG**	Deep-dive into Deep Deterministics Policy Gradient Networks	2000	Week 14
Phase 2	**T3D**	Twin Delayed Deep Deterministic Policy Gradient Algorithm	-	Week 15
GRADUATION QUALIFICATION EXAM - 20000Pts - TRAINING T3D TO MAKE A HUMONOID WALK				