



14/02/2023

Syllabus for Mid Term Test

SUBJECT	syllabus
SEM IV	Mid Term Test
Advanced Artificial Intelligence	<p>Generative and Probabilistic Models</p> <p>Introduction: Overview of generative models and their importance in AI, Fundamentals of Probability theory and generative modeling, Introduction to GANs, VAEs and other generative models. Significance of generative models, Challenges with generative models.</p> <p>Probabilistic Models: Gaussian Mixture Models (GMMs), Hidden Markov Models (HMMs), Bayesian Networks, Markov Random Field (MRFs), Probabilistic Graphical Model.</p> <p>Generative Adversarial Network</p> <p>Basics of GAN : Generative Adversarial Networks (GANs)architecture, The discriminator model and generator model, Architecture and Training GANs, Vanilla GAN Architecture. GAN variants and improvements (DCGAN, WGAN, Conditional GAN, CycleGAN), Challenges- Training instability and model collapse, GAN applications in image synthesis and style transfer</p> <p>Variational Autoencoders Introduction: Basic components of Variational Autoencoders(VAEs), Architecture and training of VAEs the loss function, Latent space representation and inference, Applications of VAEs in image generation.</p>

DLOC: Reinforcement Learning	<p>Basics : Probability distributions and expected values</p> <p>Module 1 : Introduction to Reinforcement Learning: Reinforcement Learning: Key features and Elements of RL, Types of RL, rewards. Reinforcement Learning Algorithms: Q-Learning, State Action Reward State action (SARSA)</p> <p>Module 2 : Bandit problems and online learning An n-Armed Bandit Problem, Action-Value Methods Tracking a Nonstationary Problem, Optimistic Initial Values Upper-Confidence-Bound Action Selection, Gradient Bandits</p> <p>Module 3 : Markov Decision Processes The Agent–Environment Interface, Goals and Rewards, Returns, Markov properties, Markov Decision Process, Value Functions and Optimal Value Function</p>
Social Media Analytics	<p>Social Media Analytics: An Overview Core Characteristics of Social Media, Types of Social Media, Social media landscape, Need for Social Media Analytics (SMA), SMA in small & large organizations. Purpose of Social Media Analytics, Social Media vs. Traditional Business Analytics, Seven Layers of Social Media Analytics, Types of Social Media Analytics, Social Media Analytics Cycle, Challenges to Social Media Analytics, Social Media Analytics Tools</p> <p>Social Network Structure, Measures & Visualization Basics of Social Network Structure - Nodes, Edges & Tie Describing the Networks Measures - Degree Distribution, Density, Connectivity, Centralization, Tie Strength & Trust Network Visualization - Graph Layout, Visualizing Network features, Scale Issues. Social Media Network Analytics - Common Network Terms, Common Social Media Network Types, Types of Networks, Common Network Terminologies, Network Analytics Tools</p> <p>Social Media Text, Action & Hyperlink Analytics Social Media Text Analytics - Types of Social Media Text, Purpose of Text Analytics, Steps in Text Analytics, Social Media Text Analysis Tools</p>
Recommendation Systems	<p>1.history of recommendation system, Eliciting Ratings and other Feedback Contributions, Implicit and Explicit Ratings, Recommender system functions. 1.2 Linear Algebra notation: Matrix addition, Multiplication, transposition, and inverses; covariance matrices, Understanding ratings, Applications of recommendation systems, Issues with recommender system. Collaborative Filtering</p> <p>2.Architecture of Collaborative Filtering, User-based nearest neighbour recommendation, Item-based nearest neighbour recommendation, Model based and pre-processing based approaches, Clustering for recommendation system, Attacks on</p>

	<p>collaborative recommender systems, Advantages and drawbacks of Collaborative Filtering.</p> <p>3.0 Content-based recommendation 3.1 Architecture of content-based systems, Content Representation and content similarity, Item profiles, Discovering features of documents, Obtaining item features from tags, Representing item profiles, Methods for learning user profiles, Similarity based retrieval, The Role of User Generated Content in the Recommendation Process.3.2 Bayes classifier for recommendation, Regression based recommendation system. Advantages and drawbacks of content-based filtering</p> <p>4.0 Knowledge based recommendation 4.1 Knowledge representation and reasoning, Constraint based recommenders,</p>
Project Management	
Entrepreneurship Development and Management	<p>Module1: Overview Of Entrepreneurship:</p> <p>Definitions, Businessman v/s entrepreneur, competencies, Roles and Functions of Entrepreneurship, History of Entrepreneurship Development, Role of Entrepreneurship in the National Economy, Functions of an Entrepreneur, Entrepreneurship and Forms of Business Ownership Role of Money and Capital Markets in Entrepreneurial Development</p> <p>Module 2: Business Plans and Importance Of Capital To Entrepreneurship:</p> <p>Entrepreneurship and Business Development, Start-up Costs and Financing as well as Projected Financial Statements, Legal Section, Insurance, Suppliers and Risks, Assumptions and Conclusion, Capital and its Importance to the Entrepreneur, Starting a New Business, Buying an Existing Business, New Product Development, Business Growth and the Entrepreneur Law and its Relevance to Business Operations</p> <p>Module 3: Women Entrepreneurship Development</p> <p>Social entrepreneurship-role and need, EDP cell, role of sustainability, sustainable development for SMEs</p>

	Module 4: Indian Environment for Entrepreneurship: key regulations and legal aspects , MSMED Act 2006 and its implications, schemes and policies of the Ministry of MSME, role and responsibilities of various government organisations, departments, banks etc., Role of State governments in terms of infrastructure developments and support etc., Public private partnerships, National Skill Development Mission, Credit Guarantee Fund, PMEGP
Environmental Management	Module 1
Finance Management	