Machine Learning Syllabus (Sample for Testing StudyBuddy.ai) 1. Introduction to Machine Learning - Definition of ML - Types of ML: Supervised, Unsupervised, Reinforcement Learning - Real-world applications 2. Supervised Learning - Linear Regression - Logistic Regression - Decision Trees - Random Forests - Support Vector Machines - K-Nearest Neighbors 3. Unsupervised Learning - K-Means Clustering - Hierarchical Clustering - DBSCAN - PCA (Dimensionality Reduction) 4. Feature Engineering - Handling missing values - Encoding categorical data - Feature scaling - Feature selection techniques 5. Model Evaluation - Train-test split - Cross-validation - Confusion Matrix - Accuracy, Precision, Recall, F1-score - ROC-AUC 6. Deep Learning Basics - Artificial Neural Networks - Activation Functions - Backpropagation - CNN & RNN overview 7. NLP Basics - Tokenization - Stemming & Lemmatization - TF-IDF - Embeddings 8. Model Deployment - FastAPI basics - Using vector databases - Serving ML models This PDF is auto-generated for testing StudyBuddy.ai's PDF ingestion, text extraction, embedding, and query features.