Curriculum Structure									
Session 2025-2026 onwards									
Name of the Program: P.G. Diploma in Artificial Intelligence and Machine Learning									
Year: First							Semester: I (Pawas)		
Pawas Semester I	Course Code	Course Title	Contact Hrs per Week			Credits	Weightage (%)		
			L	T	P		CW$	MTE	ETE
	Discipline Specific Core (DSC):								
	25MAI9101T	Introduction to Artificial Intelligence	4	0	0	4	10	20	70
	25MAI9102T	Mathematical Foundation	4	0	0	4	10	20	70
	25MAI9103T	Machine Learning	4	0	0	4	10	20	70
	25MAI9101P	Machine Learning Laboratory	0	0	4	2	-	-	100
	25MAI9101V	Project	0	0	4	2	-	-	
	Discipline Specific Elective(DSE): (Select any one)								
	25MAI9104T	NLP	4	0	0	4	10	20	70
	25MAI9105T	Computer Vision	4	0	0	4	10	20	70
	25MAI9106T	IoT	4	0	0	4	10	20	70
	Value Added Course(VAC):								
	---	---	--	--	--	2	--	--	--
	Seminar/Internship/Apprenticeship/Project/Community Outreach (S/I/A/P/C):								
	---	---	--	--	--	--	--	--	--
		Total				**22**			

Summary: I Semester (Pawas)		Credits
S.N.	**Particulars**	
1.	Discipline Specific Core(DSC):	**16**
2.	Discipline Specific Elective (DSE):	**04**
3.	Value Added Course (VAC):	**02**
4.	Seminar/Internship/Apprenticeship/Project/Community Outreach (S/I/A/P/C):	**00**
	Total	**22**
$CW (Class work): It would include attendance, class test/quiz test/assignments, ppt, play, learn by fun activities etc.		

Note: VAC to be selected from the list of VAC courses for PG, given on University website.

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Curriculum Structure										
Session 2025-2026 onwards										
Name of the Program: P.G. Diploma in Artificial Intelligence and Machine Learning										
Year: First							Semester: II (Vasant)			
Vasant Semester II	Course Code	Course Title	Contact Hrs per Week			Credits	Weightage (%)			
			L	T	P		CW$	MTE	ETE	
	Discipline Specific Core (DSC):									
	25MAI9201T	Deep Learning and ANN	4	0	0	4	10	20	70	
	25MAI9202T	Data Analytics	4	0	0	4	10	20	70	
	25MAI9203T	Applied Machine Learning	4	0	0	4	10	20	70	
	25MAI9201V	Project	0	0	8	4	-	-	100	
	Discipline Specific Elective(DSE):									
	25MAI9204T	Generative Artificial Intelligence	4	0	0	4	10	20	70	
	25MAI9205T	Speech Processing	4	0	0	4	10	20	70	
	25MAI9206T	Network Security using AI	4	0	0	4	10	20	70	
	Value Added Course(VAC):									
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	Seminar/Internship/Apprenticeship/Project/Community Outreach (S/I/A/P/C):									
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		Total				**22**				

Summary: II Semester (Vasant)		Credits
S.N.	**Particulars**	
1.	Discipline Specific Core(DSC):	**16**
2.	Discipline Specific Elective (DSE):	**04**
3.	Value Added Course (VAC):	**02**
4.	Seminar/Internship/Apprenticeship/Project/Community Outreach (S/I/A/P/C):	**00**
	Total	**22**
$CW (Class work): It would include attendance, class test/quiz test/assignments, ppt, play, learn by fun activities etc.		

Note: VAC to be selected from the list of VAC courses for PG, given on University website.

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Course Title:	Introduction to Artificial Intelligence	Course Code: 25MAI9101T
Total Lecture hour 60		Hours
Unit I	**Introduction and Foundations of AI** Definition and history of AI; AI applications in real-world domains (healthcare, robotics, finance, etc.); Turing test, intelligent agents, rationality; AI problem-solving approach; Introduction to Python libraries for AI: NumPy, pandas, matplotlib.	15
Unit II	**Problem Solving, Search, and Game Playing** Problem formulation and state space; Uninformed search: BFS, DFS, UCS; Informed search: Greedy Best-First Search, A* algorithm; Adversarial search: Minimax, Alpha-Beta pruning; Constraint Satisfaction Problems (CSPs).	15
Unit III	**Knowledge Representation and Reasoning** Logic in AI: Propositional and First-Order Logic; Knowledge representation using semantic networks, ontologies; Inference in First-Order Logic; Rule-based systems and expert systems; Probabilistic reasoning: Bayesian networks, Markov models	15
Unit IV	**Introduction to Learning and AI Ethics** Basics of machine learning: supervised vs. unsupervised learning; Decision trees, k-nearest neighbours; Clustering with k-means; Intro to neural networks (conceptual overview only); Ethics in AI: bias, transparency, accountability, privacy concerns	15

Course Title:	Mathematical Foundation	Course Code: 25MAI9102T
Total Lecture hour 60		Hours
Unit I	**Linear Algebra for Machine Learning** Scalars, vectors, matrices, and tensors; Matrix operations: addition, multiplication, transpose, inverse; Vector spaces, basis, and dimension; Eigenvalues and eigenvectors; Applications in ML: Principal Component Analysis (PCA), feature transformation.	15
Unit II	**Probability and Statistics** Probability theory: random variables, events, conditional probability, Bayes' theorem; Distributions: Bernoulli, Binomial, Normal, Poisson; Expectation, variance, covariance, correlation; Descriptive statistics and data visualization; Applications: Naïve Bayes classifier, probabilistic models in ML.	15
Unit III	**Calculus and Optimization** Functions, limits, and continuity; Derivatives, partial derivatives, and gradients; Chain rule and Jacobians; Gradient descent and optimization techniques; Applications: loss minimization, backpropagation in neural networks.	15
Unit IV	**Discrete Mathematics and Graph Theory** Set theory and functions; Logic and Boolean algebra; Combinatorics and counting principles; Graphs and trees: BFS, DFS, shortest path algorithms; Applications in AI: search algorithms, decision trees, knowledge graphs	15
Suggestive Readings:		
1	Mathematics for Machine Learning by Deisenroth, Faisal, and Ong	
2	Introduction to Linear Algebra by Gilbert Strang	
3	Think Stats by Allen B. Downey (Open source)	
4	MIT OpenCourseWare – Linear Algebra and Probability courses	

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Course Title:	Machine Learning	Course Code: 25MAI9103T
Total Lecture hour 60		**Hours**
Unit I	**Introduction to Machine Learning** Types of Machine Learning: Supervised, Unsupervised, Semi-supervised, Reinforcement; Applications and scope of ML in real-world systems; ML pipeline: data collection, preprocessing, model building, evaluation, deployment; Overview of Python libraries: NumPy, pandas, matplotlib, scikit-learn; Introduction to Jupyter Notebooks and Colab.	15
Unit II	**Supervised Learning** Linear regression and regularization (Lasso, Ridge); Logistic regression for classification; k-Nearest Neighbors (k-NN); Decision Trees and Random Forests; Support Vector Machines (SVM); Model evaluation: accuracy, precision, recall, F1-score, confusion matrix, ROC-AUC.	15
Unit III	**Unsupervised Learning** Clustering algorithms: k-Means, Hierarchical clustering, DBSCAN; Dimensionality reduction: PCA, t-SNE; Association rule learning (Apriori, FP-growth); Anomaly detection	15
Unit IV	**Advanced Topics and Model Optimization** Introduction to ensemble methods: Bagging, Boosting (AdaBoost, Gradient Boosting, XGBoost); Cross-validation and hyperparameter tuning (GridSearchCV, RandomizedSearchCV); Introduction to neural networks (conceptual overview);Introduction to Reinforcement Learning (basics, agent-environment interaction); Ethical considerations and bias in ML.	15

Suggestive Readings:	
1	Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow by Aurélien Géron
2	Pattern Recognition and Machine Learning by Christopher M. Bishop
3	Introduction to Machine Learning with Python by Andreas Müller & Sarah Guido
4	scikit-learn documentation

Course Title:	Machine Learning Laboratory	Course Code: 25MAI9101P
Unit I	**Lab 1: Data Preprocessing and Exploratory Data Analysis (EDA)** **Objective:** Introduce students to dataset handling, cleaning, and basic visualization. **Tasks:** • Load a dataset (e.g., Titanic, Iris, or a UCI dataset) • Handle missing values, encoding categorical features • Normalize/scale features • Perform EDA: histograms, box plots, correlation heatmaps **Tools:** Python, pandas, seaborn, matplotlib, scikit-learn **Lab 2: Supervised Learning – Linear Regression** **Objective:** Build and evaluate a regression model. **Tasks:** • Use the Boston Housing or another regression dataset • Train-test split, model training using Linear Regression • Evaluate using RMSE, MAE, R^2 • Visualize predictions vs actuals **Tools:** scikit-learn, matplotlib **Lab 3: Supervised Learning – Classification using Logistic Regression & k-NN** **Objective:** Apply and compare classification algorithms. **Tasks:** • Use the Iris or Breast Cancer dataset • Build models using Logistic Regression and k-NN	

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	• Evaluate using confusion matrix, accuracy, precision, recall • Perform cross-validation **Tools:** scikit-learn **Lab 4: Decision Trees and Random Forests** **Objective:** Explore tree-based learning algorithms. **Tasks:** • Train Decision Tree and Random Forest models • Visualize trees and feature importances • Evaluate using classification metrics • Use GridSearchCV for hyperparameter tuning **Tools:** scikit-learn, Graphviz (optional) **Lab 5: Support Vector Machines (SVM)** **Objective:** Implement SVM for classification tasks. **Tasks:** • Train SVM models with different kernels (linear, RBF) • Visualize decision boundaries • Tune hyperparameters using GridSearchCV **Tools:** scikit-learn, matplotlib **Lab 6: Unsupervised Learning – Clustering and Dimensionality Reduction** **Objective:** Apply clustering and data compression techniques. **Tasks:** • Apply k-Means and DBSCAN on synthetic and real-world datasets • Visualize clusters in 2D/3D using PCA/t-SNE • Apply PCA to reduce dimensions **Tools:** scikit-learn, seaborn, matplotlib

Course Title:	Natural Language Processing (NLP)	Course Code: 25MAI9104T
Total Lecture hour 60		**Hours**
Unit I	**Foundations of NLP** Introduction to NLP and its applications; Challenges in natural language understanding; Text preprocessing: tokenization, stemming, lemmatization, stop words; Regular expressions and pattern matching; Basic syntax and parsing: POS tagging, constituency and dependency parsing.	**15**
Unit II	**Statistical NLP and Classical Approaches** Bag-of-Words (BoW), TF-IDF; Language models: n-gram models, smoothing techniques; Text classification: Naïve Bayes, Logistic Regression, SVM; Named Entity Recognition (NER); Sentiment analysis and spam detection.	**15**
Unit III	**Word Embeddings and Deep Learning for NLP** Word embeddings: Word2Vec, GloVe, FastText; Sequence modeling: RNNs, LSTMs, GRUs; Sequence-to-sequence learning; Neural language models; Text generation with RNNs.	**15**
Unit IV	**Transformers and Applications in NLP** Introduction to the Transformer architecture; Attention mechanism and self-attention;Pretrained models: BERT, GPT, RoBERTa; Transfer learning in NLP; Applications: Question answering, summarization, translation, chatbots; Ethical considerations in NLP (bias, privacy, toxicity).	**15**

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Suggestive Readings:	
1	Speech and Language Processing by Daniel Jurafsky & James H. Martin
2	Natural Language Processing with Python by Bird, Klein & Loper (NLTK Book)
3	Deep Learning for NLP by Palash Goyal et al.

Course Title:	Computer Vision	Course Code: 25MAI9105T
Total Lecture hour 60		Hours
Unit I	**Introduction to Computer Vision and Image Processing** Overview and applications of computer vision; Digital images: pixel representation, image formation; Color models and transformations (RGB, HSV, Grayscale); Image filtering: convolution, smoothing, sharpening, edge detection (Sobel, Canny); Geometric transformations: scaling, rotation, translation, affine transforms.	15
Unit II	**Classical Vision Techniques and Feature Detection** Thresholding, histogram equalization; Morphological operations (erosion, dilation); Contours and shape analysis; Feature detection: Harris corner detector, SIFT, SURF, ORB; Object tracking: optical flow, Kalman filters	15
Unit III	**Deep Learning for Computer Vision** Convolutional Neural Networks (CNNs): architecture, filters, pooling; Image classification with CNNs (using Keras or PyTorch); Transfer learning using pretrained models (VGG, ResNet, MobileNet); Data augmentation and regularization; Evaluation metrics: accuracy, precision, recall, IoU.	15
Unit IV	**Object Detection, Segmentation & Applications** Object detection: R-CNN, Fast R-CNN, YOLO, SSD; Image segmentation: semantic vs instance segmentation; Introduction to Mask R-CNN; Applications: facial recognition, pose estimation, OCR, scene understanding; Ethical issues: surveillance, bias, privacy in vision systems.	15
Suggestive Readings:		
1	Computer Vision: Algorithms and Applications by Richard Szeliski	
2	Deep Learning for Computer Vision by Adrian Rosebrock (PyImageSearch)	
3	Stanford CS231n: Convolutional Neural Networks for Visual Recognition	
4	OpenCV and PyTorch/TensorFlow official tutorials	

Course Title:	Internet of Things (IoT)	Course Code: 25MAI9106T
Total Lecture hour 60		Hours
Unit I	**Introduction to IoT and Architecture** What is IoT? Definitions, history, and evolution; Applications of IoT: smart cities, healthcare, agriculture, industry, etc.; IoT architecture: perception, network, middleware, application layers; Overview of embedded systems and microcontrollers (Arduino, ESP32, Raspberry Pi); IoT system design considerations and constraints.	15
Unit II	**Communication Technologies and Protocols** Machine-to-Machine (M2M) and human-machine communication; Communication models: request-response, publish-subscribe; IoT network protocols: MQTT, CoAP, HTTP, LoRa, Zigbee, BLE, NB-IoT; IP addressing in IoT, IPv6, 6LoWPAN; IoT data transmission, reliability, and QoS.	15
Unit III	**IoT Data and Cloud Integration** Sensor data acquisition and processing; Edge vs. Fog vs. Cloud computing; Cloud platforms for IoT: ThingSpeak, AWS IoT, Google Cloud IoT; Data storage and analytics for IoT; Dashboards and visualization tools (Node-RED, Grafana).	15

Unit IV	**IoT Security, Privacy & Forensics** IoT security challenges: device, network, data, and cloud; Authentication, access control, and encryption in IoT; Secure boot, firmware updates, intrusion detection in IoT devices; Privacy concerns in smart devices; Basics of IoT forensics: data acquisition, logging, evidence collection; IoT regulations and standards (GDPR, NIST, ISO/IEC 30141).	15
Suggestive Readings:		
1	Internet of Things – A Hands-on Approach by Arshdeep Bahga and Vijay Madisetti	
2	Designing Connected Products by Claire Rowland	
3	Official Docs: MQTT.org, CoAP, Node-RED, Arduino.cc	

Semester – II

Course Title:	**Deep Learning and ANN**	**Course Code: 25MAI9201T**
Total Lecture hour 60		**Hours**
Unit I	**Foundations of Neural Networks and Perceptrons** Biological neuron vs artificial neuron; Perceptron and multilayer perceptron (MLP); Activation functions: sigmoid, tanh, ReLU, softmax; Loss functions and backpropagation; Optimization algorithms: gradient descent, SGD, Adam.	15
Unit II	**Deep Neural Networks and Training Techniques** Deep vs shallow networks; Vanishing and exploding gradients; Regularization techniques: dropout, L1/L2, early stopping; Batch normalization; Hyperparameter tuning, weight initialization; Model evaluation: training/validation/test, overfitting/underfitting	15
Unit III	**CNNs and Vision Applications** Convolutional Neural Networks: concepts and architecture; Layers: convolution, pooling, flattening, fully connected; Transfer learning and fine-tuning (VGG, ResNet, EfficientNet); Use cases: image classification, object detection, facial, recognition.	15
Unit IV	**RNNs, LSTMs, Transformers and Applications** Sequence data and recurrent neural networks (RNN); Limitations of vanilla RNNs and introduction to LSTM/GRU; Attention mechanism and basics of Transformer models; Applications: sentiment analysis, time series forecasting, machine translation; Ethical implications: bias, adversarial examples, explainability	15
Suggestive Readings:		
1	Deep Learning by Ian Goodfellow, Yoshua Bengio, Aaron Courville	
2	Neural Networks and Deep Learning by Michael Nielsen (free online)	
3	TensorFlow and PyTorch official documentation	
4	Stanford CS231n Lecture Notes and MIT Deep Learning Series	

Course Title:	**Data Analytics**	**Course Code: 25MAI9202T**
Total Lecture hour 60		**Hours**
Unit I	**Unit 1: Introduction to Data Analytics and Data Preprocessing** Overview of data analytics, business intelligence, and data science; Types of data: structured, unstructured, semi-structured; Data quality and preprocessing: missing values, outliers, normalization; Data types, encoding, feature selection and extraction; Introduction to data wrangling tools (Pandas, OpenRefine).	15
Unit II	**Descriptive and Inferential Statistics**	15

	Measures of central tendency and dispersion; Probability distributions: Normal, Binomial, Poisson; Hypothesis testing: t-test, chi-square test, ANOVA; Correlation and regression analysis; Sampling methods and confidence intervals.	
Unit III	**Data Visualization and Exploratory Data Analysis (EDA)** Principles of effective visualization; Charts and plots: histograms, boxplots, scatterplots, heatmaps; Multivariate data analysis; Dashboarding and storytelling with data; Tools: Matplotlib, Seaborn, Plotly, Tableau Public / Power BI (optional).	**15**
Unit IV	**Predictive Analytics and Data-Driven Decision Making** Introduction to machine learning models: classification, regression; Model selection and evaluation (confusion matrix, ROC, precision/recall, MAE, RMSE); Data pipelines and automation; Real-world case studies: fraud detection, sales forecasting, user behavior analysis; Ethical and privacy considerations in analytics.	**15**

Suggestive Readings:	
1	Practical Statistics for Data Scientists by Peter Bruce & Andrew Bruce
2	Python for Data Analysis by Wes McKinney
3	Data Science from Scratch by Joel Grus
4	scikit-learn, pandas, and seaborn documentation

Course Title:	**Applied Machine Learning**	**Course Code: 25MAI9203T**
Total Lecture hour 60		**Hours**
Unit I	**Data Understanding and Preprocessing** ML lifecycle and applied ML workflow; Types of data: numerical, categorical, text, image; Feature selection and dimensionality reduction (PCA, LDA); Handling missing data, outliers, and imbalanced datasets; Data transformation: encoding, scaling, normalization.	**15**
Unit II	**Supervised Learning Algorithms** Regression models: Linear, Ridge, Lasso, Polynomial; Classification models: Logistic Regression, K-NN, Decision Trees, Random Forest; Gradient Boosting: XGBoost, LightGBM; Hyperparameter tuning: GridSearchCV, RandomizedSearchCV; Model evaluation: cross-validation, confusion matrix, ROC-AUC, F1-score.	**15**
Unit III	**Unsupervised and Semi-supervised Learning** Clustering: K-Means, DBSCAN, Hierarchical clustering; Dimensionality reduction and visualization techniques; Association rule mining (Apriori, FP-Growth); Introduction to anomaly detection; Basics of semi-supervised learning.	**15**
Unit IV	**Model Deployment and Real-World Applications** ML pipelines and automation; Introduction to model deployment: Flask, Streamlit, FastAPI; Model monitoring and updating; Case studies: fraud detection, recommendation systems, healthcare analytics, NLP & vision; Ethics in ML: fairness, transparency, accountability	**15**

Suggestive Readings:	
1	Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow by Aurélien Géron
2	Applied Machine Learning by David Forsyth (online resources)
3	scikit-learn documentation

Course Title:	**Generative Artificial Intelligence**	**Course Code: 25MAI9204T**
Total Lecture hour 60		**Hours**
Unit I	**Introduction to Generative Models and Probabilistic Foundations** Discriminative vs. Generative models; Use cases of generative AI: image generation, synthetic data, content creation, drug discovery; Probabilistic modeling: Bayes' theorem, likelihood, marginal and conditional probabilities; Maximum likelihood estimation (MLE) and KL divergence; Introduction to latent variable models.	**15**

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Unit II	**Generative Adversarial Networks (GANs)** Architecture of GANs: generator and discriminator; Minimax optimization and convergence challenges; Variants: DCGAN, Conditional GAN, StyleGAN, CycleGAN; GAN evaluation metrics: Inception Score, FID; Common issues: mode collapse, training instability	**15**
Unit III	**Variational Autoencoders and Diffusion Models** Autoencoders vs. Variational Autoencoders (VAEs); Encoder-decoder architecture and latent space sampling; KL divergence in VAE loss; Introduction to diffusion models (DDPMs): forward and reverse processes; Comparison of VAEs, GANs, and diffusion models.	**15**
Unit IV	**Foundation Models, Prompt Engineering, and Ethical Considerations** Transformers in generative AI: GPT, BERT, T5, LLaMA; Prompt engineering for text generation and control; Hugging Face Transformers and fine-tuning language models; Generative AI in images (DALL·E), code (Codex), and video; Ethical challenges: deepfakes, bias, misuse, legal implications (copyright, authorship); Fairness, transparency, and regulation (e.g., EU AI Act, U.S. AI policy directions).	**15**
Suggestive Readings:		
1	Deep Learning by Ian Goodfellow, Yoshua Bengio, and Aaron Courville	
2	The GAN Book by Ian Goodfellow (online lectures)	
3	Generative Deep Learning by David Foster	
4	Hugging Face documentation and model hub	
5	OpenAI, Google Research, Meta AI whitepapers and repositories	

Course Title:	**Speech Processing**	**Course Code: 25MAI9205T**
Total Lecture hour 60		**Hours**
Unit I	**Fundamentals of Speech and Signal Processing** Human speech production and auditory perception; Acoustic phonetics: vowels, consonants, phonemes; Basics of digital signal processing (DSP); Sampling, quantization, framing, and windowing; Time-domain and frequency-domain analysis; Spectrograms, STFT, and filter banks.	**15**
Unit II	**Speech Feature Extraction and Preprocessing** Pre-emphasis and noise reduction; Feature extraction techniques: MFCC, LPC, PLP, log-Mel filterbanks; Delta and delta-delta features; Voice activity detection (VAD) and speech segmentation; Normalization and augmentation techniques.	**15**
Unit III	**Speech Recognition and Modeling** Overview of Automatic Speech Recognition (ASR); Traditional ASR pipeline: HMM-GMM models, Viterbi decoding; Language models: n-grams, RNN, Transformer-based LMs; End-to-end ASR: CTC, RNN-T, attention-based models; Toolkits: Kaldi, Hugging Face, ESPnet, Whisper.	**15**
Unit IV	**Speech Synthesis, Applications, and Ethics** Text-to-Speech (TTS): concatenative, parametric, and neural TTS; Tacotron, WaveNet, FastSpeech; Speaker identification and verification; Real-time applications: voice assistants, call center analytics; Ethics: spoofing, deepfakes, inclusivity in speech models, multilingual challenges.	**15**
Suggestive Readings:		
1	Speech and Language Processing by Daniel Jurafsky and James H. Martin	
2	Fundamentals of Speech Recognition by Lawrence Rabiner and Biing-Hwang Juang	
3	Librosa and Kaldi documentation	

Course Title:	Network Security using AI	Course Code: 25MAI9206T
Total Lecture hour 60		**Hours**
Unit I	**Foundations of Network Security and AI Integration** Overview of network attacks: DDoS, port scanning, spoofing, malware, botnets; Traditional approaches vs. intelligent network defense; AI and ML concepts: supervised, unsupervised, and reinforcement learning; Feature engineering for network traffic; Data sources: PCAP, NetFlow, IDS logs, Zeek/Bro logs	**15**
Unit II	**Intrusion Detection Systems (IDS) Using Machine Learning** Host-based vs. Network-based IDS; ML models for intrusion detection: decision trees, SVM, k-NN, logistic regression; Handling imbalanced data in intrusion datasets; Feature extraction and model evaluation metrics (accuracy, precision, recall, F1-score, ROC-AUC); Datasets: NSL-KDD, CICIDS2017, UNSW-NB15.	**15**
Unit III	**Deep Learning and Anomaly Detection in Network Traffic** Sequence Modeling of network flows using RNNs, LSTMs; Autoencoders for anomaly detection CNNs for packet-based classification; Real-time detection and streaming data analysis; Use of unsupervised learning for zero-day attack detection.	**15**
Unit IV	**AI-Driven Threat Intelligence and Response Systems** Threat hunting with AI: pattern recognition and prediction; Reinforcement learning for adaptive security; AI in malware traffic classification and sandbox analysis; Explainability and interpretability in AI security models; Ethical, legal, and regulatory concerns (e.g., GDPR, privacy, adversarial AI).	**15**
Suggestive Readings:		
1	Machine Learning and Security by Clarence Chio and David Freeman	
2	Hands-On Machine Learning for Cybersecurity by Soma Halder and Sinan Ozdemir	
3	MIT Lincoln Lab datasets and tutorials	
4	NIST and ENISA guidelines on AI in cybersecurity	

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