



# UET January Internship Program 2026 (Cycle-3)

## Final Report



**Organized by:** National Centre of Artificial Intelligence (NCAI), UET Lahore  
**Duration:** 05th January – 06th March 2026



## Executive Summary

The **January Internship Program 2026 (Cycle-3)**, organized by the *National Centre of Artificial Intelligence (NCAI)*, *UET Lahore*, represents a flagship initiative aimed at bridging the gap between academic learning and industry requirements through structured, hands-on training.

Conducted from **05 January to 06 March 2026**, the program engaged **60+ students across six high-demand domains**, including Generative AI, Artificial Intelligence, Cyber Security, Game Design & Development, Graphic Designing & 2D Animation, and Digital Media Marketing & Entrepreneurship. The internship followed a **project-based learning model**, combining technical instruction, supervised lab work, and mentorship-driven development.

A key strength of the program was its **Proof of Concept (PoC)-driven approach**, where students developed functional prototypes addressing real-world challenges in areas such as healthcare, cybersecurity, smart systems, education, and digital commerce. More than **30 PoC projects** were successfully completed, demonstrating practical application of modern technologies including AI/ML, computer vision, NLP, AR/VR, and digital marketing systems.

The program also delivered **tangible outcomes**, with a number of students securing **job opportunities, internships, and freelance work**, reflecting strong alignment with industry needs and enhancing employability.

A major enabler of this success has been the **generous support of UET alumni from the 66-UET and 67-UET batches**, whose contributions facilitated the **upgrade of AI and multimedia laboratories**, including the deployment of high-performance GPU workstations and advanced computing infrastructure. These enhancements have significantly strengthened NCAI's capacity for training, research, and innovation.

The internship program is now evolving into a **structured innovation pipeline**, where selected PoC projects will be further developed into funded research initiatives and potential startups in collaboration with alumni and industry partners.

The program concluded with a **closing ceremony presided over by Vice Chancellor Prof. Dr. Shahid Munir (TI)**, who appreciated the efforts of students, mentors, and organizers, and distributed trophies in recognition of outstanding performance.

This initiative continues to position **UET Lahore as a leading institution in applied AI education and industry-driven training in Pakistan**, driven by strong collaboration between academia and its global alumni network.



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## 1 Program Overview and Introduction

The **January Internship Program 2026 (Cycle-3)**, organized by the **National Centre of Artificial Intelligence (NCAI)** at the **University of Engineering and Technology (UET)** Lahore, represents one of the university's key initiatives aimed at strengthening **practical learning and industry engagement**. The program was conducted from **05 January to 06 March 2026** and was fully sponsored through the generous support of UET alumni from the **66-UET and 67-UET batches**. Their continued contribution reflects the strong culture of alumni support within the UET community and their commitment to **helping students gain meaningful professional exposure**.

The internship was designed to address an important challenge faced by many graduates: the gap between academic knowledge and practical industry requirements. While classroom learning provides essential theoretical foundations, students often need structured opportunities to apply that knowledge in real working environments. To address this need, NCAI structured the internship as a practical learning program that combines technical instruction with project-based work and guided mentorship.

Participants engaged in six high-demand, future-oriented domains:

- **Generative AI** – large language models, agentic AI, multimodal systems
- **Artificial Intelligence (AI)** – data pipelines, ML/DL algorithms, computer vision, NLP
- **Cyber Security** – ethical hacking, intrusion detection, threat modeling, secure system design
- **Game Design & Development** – Unity, C#, AR/VR simulation, AI-driven gameplay
- **Graphic Designing & 2D Animation** – brand identity, motion graphics, visual storytelling
- **Digital Media Marketing & Entrepreneurship** – SEO, social media strategy, content creation, digital branding

A total of more than **60 students were selected through a competitive merit-based process**, ensuring that the program attracted highly motivated individuals capable of absorbing intensive training. Each intern received **20+ hours of structured learning per week**, combining conceptual lectures, supervised laboratory work, weekly review meetings, collaborative problem-solving tasks, and mentor-led domain clinics. This robust and disciplined structure ensured that students not only learned tools and technologies but also internalized the discipline, teamwork, and professionalism expected in the industry.



A core feature of the internship program is its Proof of Concept (PoC) development approach. Instead of focusing only on learning tools and concepts, interns actively work on developing functional prototypes that address real-world challenges. These projects cover areas such as healthcare, education, cybersecurity, smart cities, marketing automation, and interactive digital solutions. Through these PoCs, students demonstrate creativity as well as their growing technical capability by applying machine learning techniques, AI-based workflows, AR and VR environments, design concepts, and digital marketing strategies to develop solutions with practical relevance. The collaborative learning environment, supported by instructors, coordinators, alumni mentors, and NCAI research teams, played an important role in encouraging innovation and helping students translate their ideas into working solutions.

This report presents a comprehensive overview of Cycle-3, highlighting domain-wise training activities, Proof of Concept outcomes, student achievements, and improvements made to laboratory resources through the continued support of alumni. During this cycle, NCAI's computing environment was further strengthened with the addition of high-performance GPU workstations, upgraded networking infrastructure, and enhanced multimedia facilities. These improvements significantly supported the training process and will continue to provide valuable resources for upcoming internship programs, research initiatives, and academic activities across UET.

## 1.1 Cycle-3 at a Glance

- Total Participants: 65
- Domains Covered: 6
- Duration: 2 Months
- Contact Hours: 160–180 hours per domain
- Projects, PoCs, and Brand Outputs Developed: 43
- Laboratory Upgrades: High-performance GPU workstation and supporting infrastructure

During this cycle, several students secured job opportunities, internships, and freelance work, reflecting the practical effectiveness of the program and its alignment with industry needs.

With the successful completion of the internship, students finalized their capstone projects, refined documentation, strengthened their professional portfolios, and participated in the closing ceremony. Their work now serves not only as a testament to their learning but also as a showcase for potential industry partners, donors, and academic collaborators.



The **January Internship Program** has gradually become a strong example of meaningful collaboration between alumni and the university. It demonstrates how UET's global alumni network, working together with academic leadership, can contribute significantly to strengthening institutional capacity, supporting student development, and promoting technological progress in the country. With preparations already underway for **Cycle-4**, the program aims to further expand its reach, **introduce additional domains**, and strengthen collaboration with industry partners and research organizations.

Looking ahead, UET remains committed to cultivating future-ready talent capable of contributing meaningfully to Pakistan's digital future. The continued support of alumni, faculty, and partners will be instrumental in scaling this initiative, ensuring that UET remains a national leader in AI-driven education, applied research, and innovation.



## 2 All Domains Completion Reports

### 2.1 Generative AI Internship



**Instructor:** Ms. Tooba Pervaiz

**Assistant Coordinator:** Ms. Asma Fatima



### **2.1.1 Executive Summary**

The 2-month (180-hour) Generative AI Internship Program conducted at the NCAI Lab provided trainees with a structured, hands-on learning experience in NLP preprocessing, sequence modeling, transformer architectures, large language models (LLMs), prompt engineering, fine-tuning, RLHF, retrieval-augmented generation (RAG), and agentic AI systems. Over the course of 9 weeks and 45 working days, interns progressed from foundational text processing skills to building end-to-end generative AI applications, including chatbots, RAG pipelines, and autonomous AI agents. A total of 13 trainees successfully completed the program under the guidance of Instructor Tooba Pervaiz and Assistant Coordinator Asma Fatima, demonstrating strong technical growth, project-based learning, and practical proficiency in modern generative AI tools and frameworks.

### **2.1.2 Introduction**

The Generative AI Internship Program was designed to bridge theoretical knowledge and industry-level application by engaging trainees in practical, daily hands-on tasks. Conducted at the National Centre of Artificial Intelligence (NCAI) Lab, the internship followed a structured weekly framework that progressively introduced trainees to core generative AI concepts, from classical NLP preprocessing through to cutting-edge LLM fine-tuning and agentic workflows. Each week built upon previous learning, enabling interns to develop both conceptual understanding and technical fluency with state-of-the-art tools such as HuggingFace, LangChain, LlamaIndex, and OpenAI APIs.

Throughout the 180 contact hours, trainees engaged in guided exercises, graded mini-projects, paper reviews, real-world API integrations, and collaborative presentations. The internship emphasized not only model development but also critical skills such as prompt engineering, evaluation metrics (BLEU, ROUGE, perplexity), ethical considerations, technical documentation, and reproducibility. By the end of nine weeks, trainees were equipped with the knowledge and practical experience required to design and deploy generative AI solutions across NLP, LLM, and autonomous agent domains.

The program concluded with capstone final projects and live demonstrations, giving students firsthand exposure to real-world generative AI problem solving. Their work reflected a strong command of end-to-end GenAI pipelines, encompassing data preprocessing, model fine-tuning, retrieval-augmented generation, performance evaluation, and professional presentation.

### **2.1.3 Overall Objective of the Internship Program**

The overarching objective of the Generative AI Internship Program is to enable participants to gain hands-on, project-based experience that bridges the gap between academic learning and industry-level application of modern generative AI technologies.



Through Proof of Concept (PoC) projects spanning areas such as LLM fine-tuning, retrieval-augmented generation, prompt engineering, and agentic AI systems, trainees not only strengthen their technical and creative abilities but also develop essential professional competencies, including teamwork, communication, technical documentation, and presentation skills.

Each internship culminates in a demonstrable prototype or working generative AI system, such as a fine-tuned language model, a functional RAG pipeline, or an autonomous AI agent. These projects will be presented to various organizations and potential sponsors to seek PoC funding or full-scale development support.

In addition, each domain team is required to prepare a complete PoC document and a PowerPoint presentation highlighting the concept, objectives, outcomes, and implementation roadmap, to be formally delivered to potential sponsors and partner organizations.

This approach ensures that trainee innovation in generative AI contributes directly to NCAI's ongoing mission of linking education, research, and industry, advancing Pakistan's capacity in one of the most transformative technological fields of our time.



### 2.1.4 Generative Artificial Intelligence Internship Outline

2-Month Generative AI Outline	
	Course Title: Generative AI Duration: 2 Months (9 Weeks / 45 Working Days) Hours: 4 hours per day Total Contact Hours: 180 hours Total Trainees: 13 Instructor Name: Tooba Pervaiz

No	Week	Day	Topic
1	Week 1	Day 1	Intro to NLP, text structure, real-world applications
		Day 2	Tokenization, stop words, stemming, lemmatization
		Day 3	POS tagging, Named Entity Recognition (NER)
		Day 4	Build complete preprocessing pipeline
		Day 5	Apply pipeline to synthetic dataset
2	Week 2	Day 6	RNNs, LSTMs, GRUs – architectures, vanishing gradients, temporal dependencies
		Day 7	Transformer architecture – attention, self-attention, positional encoding
		Day 8	Implement LSTM for text generation or classification
		Day 9	Fine-tune pretrained transformer (e.g., DistilBERT) on classification task
		Day 10	Compare RNN vs Transformer models – performance, training dynamics
3	Week 3	Day 11	GPT, T5, BERT – comparison and evolution of LLMs
		Day 12	Tokenization schemes and embeddings
		Day 13	Prompt engineering techniques
		Day 14	Use OpenAI/HuggingFace APIs to build chatbot
		Day 15	Share chatbot and write Prompt Engineering deck
4	Week 4	Day 16	Introduction to fine-tuning: full, adapter-based, PEFT methods
		Day 17	LoRA & QLoRA: parameter-efficient fine-tuning concepts



No	Week	Day	Topic
		Day 18	Implement LoRA/QLoRA fine-tuning on small LLM
		Day 19	Evaluate performance: memory usage, speed, output quality
		Day 20	Document your fine-tuning workflow for reproducibility
5	Week 5	Day 21	Language model scaling & RLHF
		Day 22	Ethical concerns: bias, hallucination, safety
		Day 23	Compare outputs of 2–3 LLMs
		Day 24	Evaluate outputs with BLEU, ROUGE, perplexity
		Day 25	Finalize and submit evaluation write-up
6	Week 6	Day 26	Introduction to RAG: architecture & purpose
		Day 27	Tools: LangChain, LlamaIndex, Haystack
		Day 28	Implement basic RAG pipeline
		Day 29	Evaluate and improve the RAG system
		Day 30	Submit RAG system demo
7	Week 7	Day 31	Introduction to Agentic AI: autonomy, planning
		Day 32	Tooling: LangChain agents, AutoGPT
		Day 33	Agent memory and planning
		Day 34	Use agents for project-specific workflows
		Day 35	Share agent + document experience
8	Week 8	Day 36	Conducting technical literature reviews
		Day 37	Summarize key LLM and Gen AI papers
		Day 38	Present and discuss selected papers
		Day 39	Identify gaps and brainstorm ideas
		Day 40	Finalize mini-project topics
9	Week 8	Day 41	Technical documentation best practices: reproducibility, versioning, testing
		Day 42	Final polishing: code cleanup, test cases, runtime validation
		Day 43	Prepare final presentations (technical + impact + demo)
		Day 44	Final project presentations (individuals or teams)
		Day 45	Reflection, feedback session, blog wrap-up, and closing



### **2.1.5 PoC Projects Developed by Students During the Internship**

The following Proof of Concept (PoC) projects were developed by the students during the two-month Generative AI Internship. Selected projects will also have complete PoC documents prepared for submission to various agencies and organizations for potential sponsorship and development funding.

A total of Five PoCs were developed during the internship, covering large language model applications, retrieval-augmented generation systems, agentic AI workflows, multimodal AI, and domain-specific fine-tuning implementations.

#### **2.1.5.1 Project 1: KisaanGPT: AI-Based Urdu Farmer Advisory System**

##### **Objective:**

Build a voice and image-enabled AI advisory platform for rural farmers in Pakistan, removing language and literacy barriers by supporting Urdu speech input/output and plant image analysis.

##### **Key Features:**

- Voice-based Q&A in Urdu (crop, soil, pests, irrigation, weather)
- Automatic Speech Recognition (ASR) + Text-to-Speech (TTS) in Urdu
- Intent classification and intelligent response retrieval
- Image upload for plant/crop analysis: users can photograph their crops to receive AI-driven diagnosis and recommendations

##### **Tools & Technologies:**

Python, Flask/Django, Hugging Face Transformers, Google Cloud STT/TTS, SQLite/FAISS, Computer Vision model (e.g. YOLOv8 or a fine-tuned CNN for plant disease detection)

##### **Expected Outcome:**

A functional Urdu mobile/web prototype with an integrated NLP engine, STT/TTS support, and plant image analysis. Backed by a knowledge base of crop diseases and best practices, the system will make AI-driven farming guidance accessible to rural farmers.



### **2.1.5.2 Project 2: Deep Fake Guard: A Deepfake Video Generation & Analysis System**

#### **Objective:**

Develop a dual-purpose deepfake framework focused on face swap video generation and detection, alongside voice cloning and detection.

#### **Key Features:**

- Face swap video generation using state-of-the-art generative models
- Deepfake video detection using spatial and temporal inconsistency analysis
- Voice cloning from limited audio samples
- Cloned voice detection using audio forensics

#### **Tools & Technologies:**

Python, PyTorch/TensorFlow, OpenCV, NumPy, Pandas, Matplotlib, Scikit-learn, FFmpeg

#### **Expected Outcome:**

A complete face swap and voice cloning pipeline paired with robust detection models. The project will produce a labeled dataset and research insights applicable to digital forensics, content moderation, and cybersecurity.

### **2.1.5.3 Project 3: ScholarSync: Research Paper Analyzer Tool**

#### **Objective:**

Automate the extraction, comparison, and synthesis of key information from research papers to help researchers identify trends and gaps faster.

#### **Key Features:**

- PDF parsing and structured information extraction (objectives, methods, datasets, results)
- Research paper network visualization
- Auto-generated summary reports

#### **Tools & Technologies:**

Python, PyPDF2/pdfplumber, SpaCy, SciBERT, Sentence Transformers, NetworkX, Plotly/Streamlit

#### **Expected Outcome:**

A PDF ingestion and extraction pipeline with an interactive paper relationship graph and auto-generated summaries, significantly reducing time spent on manual literature review.



#### **2.1.5.4 Project 4 Authentify – Human-Centric Refinement of AI-Generated Text**

##### **Objective**

A post-editing system that transforms AI-generated text into natural, human-like content by eliminating robotic patterns, improving tone, and enhancing stylistic diversity.

##### **Key Features**

- Detection and revision of repetitive phrasing and unnatural sentence structures
- Tone adjustment across styles (conversational, persuasive, emotional)
- Idiom injection and sentence variation for natural flow

##### **Tools & Technologies**

Python, Hugging Face Transformers (T5/BART), NLTK, TextStat, FastAPI

##### **Expected Outcome**

The project will deliver a fine-tuned text refinement model exposed via a web API that takes AI-generated text and returns a humanized version. Performance will be evaluated through readability scores and human evaluation reports, ensuring outputs are indistinguishable from human-authored content.

#### **2.1.5.5 VeriRefund – AI-Generated & Human Fake Review Detection**

##### **Objective:**

A dual-focus detection system that identifies both human-written and AI-generated fake reviews on e-commerce platforms to protect consumer trust and platform integrity.

##### **Key Features:**

- Detection of human-written fake reviews (generic language, emotional extremes, lack of detail)
- Detection of LLM-generated fake reviews using AI-specific artifact analysis
- Trained on real, human-fake, and AI-fake review datasets (Yelp, Amazon)

##### **Tools & Technologies**

Python, Hugging Face Transformers, Pandas, Scikit-learn, FastAPI.

##### **Expected Outcome:**

The project will deliver a curated labeled dataset of real, human-fake, and AI-fake reviews alongside a trained transformer classification model. A prototype API will enable real-time review checking, supported by an analysis report highlighting the distinguishing features between human and AI-generated fake reviews.



### 2.1.6 Project Summary

S. No	Project Title	Category	PoC Document	Status
1	KisaanGPT – AI-Based Urdu Farmer Advisory System	NLP / LLM / ASR & TTS	Yes	Completed
2	Deep Fake Guard – Deepfake Video Generation & Detection	Generative AI / CV / Audio Forensics	Yes	Completed
3	ScholarSync – Research Paper Analyzer Tool	NLP / RAG / LLM	Yes	Completed
4	Authenticate – Human-Centric Refinement of AI-Generated Text	LLM Fine-tuning / NLP	Yes	Completed
5	VeriRefund – AI-Generated & Human Fake Review Detection	NLP / LLM / Classification	Yes	Completed

### 2.1.7 Conclusion

The completion of the Generative AI Internship Program (2 Months / 180 Hours) marks a significant achievement in preparing students for emerging opportunities in one of the most rapidly evolving fields in technology. Throughout the 9-week intensive training, trainees demonstrated strong technical growth, progressing from NLP preprocessing fundamentals to advanced transformer architectures, LLM fine-tuning, retrieval-augmented generation, and autonomous agentic systems, while completing hands-on projects and impactful Proof-of-Concept (PoC) systems.

The dedication shown by the interns, the guidance of the instructors, and the support from NCAI Lab collectively contributed to a highly successful internship cycle. The PoCs developed, ranging from KisaanGPT and ScholarSync to Authenticate and VeriRefund, lay the foundation for future research, industry collaborations, and deployment-ready generative AI solutions.

This internship reflects NCAI UET's commitment to nurturing industry-ready AI talent and strengthening its role as a leading center for innovation, applied research, and technological advancement in generative AI. We look forward to continuing this momentum in future cycles and expanding opportunities for students to engage in high-impact projects



## 2.2 Artificial Intelligence Internship



**Instructor:** Mr. Muhammad Abdullah  
**Assistant Coordinator:** Ms. Laiba Abbas



### 2.2.1 Executive Summary

The **2-month (160-hour) AI Internship Program** conducted at the **NCAI Lab** provided trainees with a structured and hands-on learning experience in **Python programming, data preprocessing, machine learning, deep learning, and natural language processing**. Over the course of **8 weeks and 40 working days**, interns progressed from foundational coding skills to the development of **end-to-end AI projects and Proof-of-Concept (PoC) systems**.

A total of **10 trainees successfully completed the program** under the guidance of **Instructor Laiba Abbas**. Throughout the internship, participants demonstrated significant technical growth through **project-based learning, practical experimentation, and real-world problem-solving activities**. The program enabled trainees to develop a strong understanding of modern AI tools and methodologies while applying them to practical challenges.

### 2.2.2 Introduction

The AI Internship Program was designed to bridge the gap between theoretical knowledge and real-world industry applications by engaging trainees in practical, hands-on tasks on a daily basis. Conducted at the National Centre of Artificial Intelligence (NCAI) Lab, the internship followed a structured weekly framework that progressively introduced trainees to core AI concepts, Python programming fundamentals, and modern machine learning techniques.

Each week built upon the concepts learned in previous sessions, allowing interns to gradually develop confidence, technical proficiency, and problem-solving abilities while working with essential tools and frameworks used in AI development.

Throughout the 160 contact hours, trainees participated in guided exercises, graded mini-projects, real-world case studies, and collaborative discussions. The internship emphasized not only model development but also the development of critical skills such as evaluation methodologies, basic deployment practices, documentation standards, and teamwork.

By the conclusion of the eight-week program, trainees had gained the knowledge and practical experience necessary to implement AI solutions and design complete projects across multiple domains including Machine Learning (ML), Deep Learning (DL), Computer Vision (CV), and Natural Language Processing (NLP).

The program concluded with capstone projects and Proof-of-Concept (PoC) development, providing students with valuable exposure to real-world problem-solving scenarios. Their final work demonstrated a clear understanding of end-to-end AI development pipelines, including data preparation, model training and optimization, visualization, and project presentation.



### 2.2.3 Overall Objective of the Internship Program

The primary objective of the internship program across all domains is to enable participants to gain hands-on, project-based experience that bridges the gap between academic learning and practical industry application.

Through the development of Proof-of-Concept (PoC) projects, students strengthen their technical capabilities, analytical thinking, and creative problem-solving skills. In addition to technical learning, the program also emphasizes teamwork, communication, project documentation, and professional presentation skills, which are essential competencies for success in professional and research environments.

Each internship cycle concludes with the development of a working prototype or demonstrable concept, which can be presented to organizations, industry partners, and potential sponsors for **further** PoC funding or full-scale system development.

Furthermore, each domain team is required to prepare a comprehensive PoC document and a PowerPoint presentation that clearly outlines the project concept, objectives, implementation methodology, expected outcomes, and future development roadmap. These presentations are formally delivered to potential sponsors, industry collaborators, and partner organizations.

This approach ensures that student-driven innovation contributes directly to UET's broader mission of connecting education, research, and industry collaboration for national technological development.



### 2.2.4 Artificial Intelligence Internship Outline

2-Month Artificial Intelligence Outline	
	Course Title: Artificial Intelligence Duration: 2 Months (8 Weeks / 40 Working Days) Hours: 4 hours per day Total Contact Hours: 160 hours Total Trainees: 11 Instructor's Name: Laiba Abbas

No.	Week	Day	Topic
1	Week 1	Day 1	Intro to Python, Syntax, Variables
	Week 1	Day 2	Data Types, Lists, Tuples, Dictionaries
	Week 1	Day 3	Loops, Conditionals
	Week 1	Day 4	Functions, File Handling
	Week 1	Day 5	OOP Basics, NumPy, Pandas
2	Week 2	Day 6	Data Preprocessing, Handling Nulls
	Week 2	Day 7	Encoding, Scaling, Train-Test Split
	Week 2	Day 8	Linear & Logistic Regression
	Week 2	Day 9	Decision Trees, KNN
	Week 2	Day 10	Model Evaluation Techniques
3	Week 3	Day 11	Clustering: KMeans, DBSCAN
	Week 3	Day 12	Dimensionality Reduction: PCA
	Week 3	Day 13	SVM & Naive Bayes
	Week 3	Day 14	Cross-validation & GridSearchCV
	Week 3	Day 15	ML Mini Project Implementation
4	Week 4	Day 16	Neural Networks: Perceptron, Activation Functions
	Week 4	Day 17	Loss Functions, Optimizers
	Week 4	Day 18	CNN Architecture
	Week 4	Day 19	Regularization: Dropout, L2
	Week 4	Day 20	DL Mini Project: MNIST Classification
5	Week 5	Day 21	Intro to OpenCV & Image Basics
	Week 5	Day 22	Image Preprocessing & Transformations
	Week 5	Day 23	Pretrained Models: VGG, ResNet
	Week 5	Day 24	Transfer Learning Concepts
	Week 5	Day 25	CV Mini Project: Mask Detection
6	Week 6	Day 26	Text Cleaning & Preprocessing
	Week 6	Day 27	TF-IDF & Bag of Words
	Week 6	Day 28	Word2Vec, GloVe Embeddings
	Week 6	Day 29	Transformers & HuggingFace



No.	Week	Day	Topic
	Week 6	Day 30	NLP Mini Project: Spam Detection
7	Week 7	Day 31	Capstone Project Setup & Planning
	Week 7	Day 32	Team Discussion & Dataset Preparation
	Week 7	Day 33	Model Development: CV Project
	Week 7	Day 34	Model Development: NLP Project
	Week 7	Day 35	Model Testing & Iteration
8	Week 8	Day 36	Project Finalization
	Week 8	Day 37	Documentation & Report Writing
	Week 8	Day 38	Presentation Design
	Week 8	Day 39	Team Presentation Rehearsal
	Week 8	Day 40	Final Project Presentations

## 2.2.5 PoC Projects Developed by Students During the Internship

### 2.2.5.1 Project 1: Real-Time Provincial Performance Analyzer

#### Objective:

To develop a data-driven platform that fetches real-time public data from online sources and evaluates the performance of Pakistan's provinces across key development sectors. The system computes sector-wise scores using authentic statistics and uses AI only to generate trend analysis and political context summaries.

#### Key Features:

- Scrapes live data from publicly available web sources such as Wikipedia and official government portals.
- Evaluates five major sectors: Infrastructure, Education, Health, Economy, and Governance & Security.
- Computes province-wise performance scores based strictly on real numerical indicators.
- Provides ranking and comparison features between provinces.
- Uses AI (Groq/LLaMA) only for analytical summaries and political context explanation.

#### Tools & Technologies:

Python, Requests, BeautifulSoup, Pandas, Groq API ,LLaMA , Web Scraping, and Data Analysis libraries.

#### Expected Outcome:

A real-time provincial performance system that presents authentic, data-backed rankings and insights. The platform will enable transparent comparison of development indicators and provide AI-generated contextual analysis based on factual live data.



### 2.2.5.2 Project 2: Construction Site Safety Monitor

#### Objective:

Construction Site Safety Monitor is a real-time AI-powered safety monitoring system for construction sites. It uses a trained YOLOv8 deep learning model to analyze live camera footage and automatically detect safety violations among workers, helping supervisors ensure compliance and prevent workplace accidents.

#### Key Features:

- Real-time detection of hardhats, masks, safety vests, and their absence using YOLOv8
- Live dynamic risk score (0–100) with color-coded levels: Low, Medium, High, Critical
- Instant alert log with notifications whenever safety violations are detected in frame
- Bounding box overlays on live camera feed showing each detected object with confidence score
- Demo simulation mode for presentations without requiring the full backend model

#### Tools & Technologies:

YOLOv8 (Ultralytics) for object detection, Python with Flask for the backend API, HTML/CSS/JavaScript for the live monitoring dashboard, and the Roboflow construction site safety dataset for model training.

#### Expected Outcome:

The system will accurately identify workers missing required safety equipment in real time and immediately flag violations with risk scoring. It is expected to significantly reduce safety incidents on construction sites by providing supervisors with instant, automated monitoring and alerts.



### 2.2.5.3 Project 3: AI-based Multi-Label Allergen Risk Assessment for Unpackaged Foods Using Vision Language Model

#### Objective:

To develop an AI-powered web application that detects potential allergens in unpackaged foods by analysing food images and/or ingredient text using a Vision Language Model (VLM). The system aims to provide real-time, multi-label allergen risk scores to help individuals with food allergies make safer dietary decisions.

#### Key Features:

- Multi-modal input support — accepts food images, ingredient text, or both simultaneously for allergen analysis
- Detects 12 major allergens including Milk, Egg, Peanut, Tree Nuts, Wheat/Gluten, Soy, Fish, Shellfish, Sesame, Mustard, Celery, and Molluscs
- Automatic dish identification — recognises the food item from an image and provides its name and description
- Per-allergen risk scoring (0–100%) with color-coded visual gauges indicating severity level
- Hidden allergen detection — identifies indirect allergens such as soy derivatives in sauces or milk in butter-based preparations

#### Tools & Technologies:

Python, Streamlit, Google Gemini Vision API (gemini-flash-lite), Pillow, JSON — deployed as an interactive web application with a dark-themed professional UI.

#### Expected Outcome:

A fully functional allergen risk assessment tool that takes food images or ingredient lists as input and returns a structured risk report including dish name, confidence level, allergen-wise probability scores, and safety warnings. The system serves as a practical decision-support tool for allergy-conscious consumers and can be extended for use in restaurant management, food labelling compliance, and clinical dietary planning.



#### **2.2.5.4 Project 4: AI Industrial Defect Detection**

##### **Objective:**

To develop an automated quality assurance platform that utilizes computer vision to identify manufacturing defects in real-time and maintain a data-backed record of industrial health

##### **Key Features:**

- **Multi-Modal Input Processing:** Capable of analyzing live camera streams, recorded MP4 videos, and static high-resolution images.
- **Automated Defect Logging:** Every detected anomaly is recorded with a timestamp, classification label, and confidence score in a central industrial\_logs.csv database.
- **Industrial Analytics Dashboard:** Features a data-driven interface that generates trend analysis, defect distribution charts, and historical ranking summaries.
- **Dynamic Sensitivity Control:** Includes a user-adjustable confidence threshold to fine-tune AI detection accuracy based on specific environmental lighting or material types.
- **Real-Time Visualization:** Provides immediate visual feedback by overlaying bounding boxes and diagnostic labels on the inspection feed.

##### **Tools & Technologies:**

**Python, Pandas, CNN, YOLO, Streamlit.**

##### **Expected Outcome:**

A functional end-to-end inspection system that provides authentic, data-backed rankings of manufacturing quality. The platform will enable a transparent comparison of production batches and provide AI-generated contextual analysis based on factual live data.



### 2.2.5.5 Project 5: YOLO-Based Intelligent PPE Monitoring System for Industrial Environments

#### Objective:

To develop a real-time computer vision system that detects Personal Protective Equipment (PPE) such as helmets and safety vests using deep learning. The system monitors safety compliance through uploaded videos and live webcam streams, ensuring workplace safety monitoring automation.

#### Key Features:

- Real-time helmet and vest detection using YOLO model
- Video upload with automated detection processing
- Live webcam detection with seamless source switching
- WebSocket-based real-time frame streaming
- Interactive dashboard displaying violations and live system status

#### Tools & Technologies:

Python, FastAPI, OpenCV, YOLOv11, WebSockets, HTML/CSS/JavaScript

#### Expected Outcome:

A functional AI-powered safety monitoring dashboard capable of detecting PPE violations in real time from multiple sources. The system demonstrates practical application of computer vision in industrial safety compliance.

### 2.2.5.6 Project 6: Vision-Language–Based Fake News Detection Using CLIP and LLaVA

#### Objective:

Develop a multimodal misinformation detection system that analyzes image-caption pairs using CLIP and LLaVA Vision Language Models to identify fake news, AI-generated images, and misleading context. The system provides accessible fact-checking for general users, journalists, and news agencies.

#### Key Features:

- Blind image analysis using LLaVA without caption bias
- Semantic image-caption consistency checking using CLIP embeddings



- Location and time period mismatch detection
- Eight-point verification checklist with pass/fail results
- Clear AUTHENTIC, SUSPICIOUS, or FAKE verdict with detailed reasoning

**Tools & Technologies:**

CLIP ViT-B/32, LLaVA, Groq API, Python, Streamlit, PyTorch, Google Colab

**Expected Outcome:**

A fully functional fake news detection tool that accurately classifies viral image-caption pairs, provides explainable verdicts with specific red flags, and is deployable as an accessible web interface for real-time misinformation verification.

**2.2.5.7 Project 7: GestureTalk – An AI-Based Real-Time Sign Language to Speech Translation System**

**Objective:**

To develop a deep learning system that recognizes hand gestures and converts them into text, enabling communication support for hearing and speech-impaired individuals.

**Key Features:**

- Hand gesture detection using computer vision
- Deep learning gesture classification
- Real-time gesture recognition
- Text output generation from gestures
- Interactive user workflow

**Tools & Technologies:**

mediapipe, opencv-python, numpy, tensorflow, scikit-learn, Streamlit, gtts==2.5.1, matplotlib, seaborn

**Expected Outcome:**

A functional AI application converting sign language gestures into text, showcasing real-world AI problem solving.



### 2.2.5.8 Project 8: AI Fashion Stylist & Size Recommender

#### Objective:

To build an AI tool that measures a person's body (like shoulders and chest) using a live camera and suggests the perfect clothing size for brands like J. and Outfitters.

#### Key Features:

- Auto Body Tracking: Automatically finds and tracks body points using a camera.
- Smart Measurement: Converts camera pixels into real inches to get accurate body sizes.
- Size Matching: Suggests the best fit (Small, Medium, Large, or XL) based on brand charts.
- Easy Interface: A simple web screen where users can see their measurements and recommended size live.

#### Tools & Technologies:

Python, OpenCV (for camera), MediaPipe (for body tracking), and Streamlit (for the web app).

#### Expected Outcomes:

- Helping people find the right clothes online without trying them on.
- Reducing the problem of returning clothes because of wrong sizes.
- Making online shopping faster and easier using AI.

### 2.2.5.9 Project 9: EyeScan AI: Multi-Label External Eye Disease Detection System

#### Objective:

To develop a lightweight, explainable, multi-label deep learning system for detecting common external eye diseases from standard camera images.

#### Key Features

- Multi-label classification to handle the co-occurrence of multiple eye conditions in a single image.
- Explainability incorporated using Grad-CAM for visual interpretation and to highlight image regions influencing predictions.
- A confidence-based advisory system for safer prediction reporting, recommending consultation with a specialist for low-confidence results.
- Deployment through an interactive web application using Streamlit.



- Utilizes the EfficientNet-B0 model architecture, which is lightweight and suitable for deployment on low-resource systems.

### **Tools & Technologies**

Model Architecture: EfficientNet-B0 Frameworks: PyTorch / TensorFlow Explainability: Grad-CAM Deployment: Streamlit

### **Expected Outcome:**

A trained multi-label deep learning model for external eye disease detection. A fully functional, web-accessible application interface with visual explainability outputs and a confidence-based advisory mechanism.

### **2.2.5.10 Project 10: A Systematic AI-Based Employee Ranking System Using Multi-Criteria Performance Evaluation**

#### **Objective:**

To develop a computer vision model that automatically detects whether a person is wearing a face mask using image datasets and CNN architectures.

#### **Key Features:**

- Feature extraction and feature engineering
- Random Forest model implementation
- User Interface to easily rank the employee.

### **Tools & Technologies**

Python, NumPy, Matplotlib, Pandas, Scikit-learn, Streamlit

### **Expected Outcome:**

A working prototype of an employee ranking system, that is once trained on dataset, and next time will rank the unknown employees based on the given features.



### 2.2.6 Project Summary

S. No	Project Title (Short Form)	Category	PoC Document	Status
1	Real-Time Provincial Performance Analyzer	AI	Yes	Completed
2	Construction Site Safety Monitor	CV / DL	Yes	Completed
3	Multi-Label Allergen Risk Assessment	VLM / Multimodal AI	Yes	Completed
4	AI Industrial Defect Detection	CV / DL	Yes	Completed
5	YOLO-Based Intelligent PPE Monitoring System	CV / DL	Yes	Completed
6	Vision-Language Fake News Detection	Multimodal AI / VLM	Yes	Completed
7	GestureTalk – Sign Language to Speech	CV / DL	Yes	Completed
8	AI Fashion Stylist & Size Recommender	CV / DL / AI	Yes	Completed
9	EyeScan AI – Eye Disease Detection	CV / DL / Medical AI	Yes	Completed
10	AI-Based Employee Ranking System	ML / DL / Data Analytics	Yes	Completed

### 2.2.7 Conclusion

The successful completion of the AI Internship Program (2 Months / 160 Hours) at the NCAI Lab represents a significant step toward preparing students for the evolving demands of the Artificial Intelligence and data-driven technology landscape. Over the eight-week training period, interns progressed from foundational Python programming to advanced concepts in Machine Learning, Deep Learning, and Computer Vision, while gaining hands-on experience through practical exercises, guided case studies, and system development tasks. This structured approach enabled participants to understand and implement end-to-



end AI development pipelines, including data preparation, model training, evaluation, and application-level deployment.

A key highlight of the internship was the development of Proof-of-Concept (PoC) projects addressing real-world challenges through applied AI solutions. Notable examples include EyeScan AI, a multi-label deep learning system for external eye disease detection with explainability features; AI Industrial Defect Detection, an automated computer vision platform designed to identify manufacturing defects and support industrial quality control; and the YOLO-Based PPE Monitoring System, a real-time safety compliance system that detects protective equipment violations in industrial environments. These projects demonstrate the interns' ability to translate theoretical knowledge into practical, deployable AI solutions across healthcare and industrial domains.

Overall, the internship reflects UET's strong commitment to cultivating industry-ready AI talent and promoting innovation-driven learning environments. The collaborative efforts of the trainees, instructors, and the NCAI Lab resulted in a productive and impactful training cycle that strengthened technical competencies, research exposure, and problem-solving capabilities. The outcomes of this program provide a solid foundation for future research initiatives, industry partnerships, and the continued development of scalable AI-based systems.



## 2.3 Cyber Security Internship



**Instructor:** Dr. Muhammad Waseem  
**Assistant Coordinator:** Ms. Laiba Saleem



### **2.3.1 Executive Summary**

Cybersecurity Internship Program was designed to give the trainees a comprehensive and hands-on experience in both offensive and defensive cybersecurity techniques. For instance, the trainees took part in various Red Teaming activities such as ethical hacking and penetration testing of web applications and networks using various tools available in Kali Linux and scripting techniques. Such an experience helped the trainees understand how attacks are carried out and how attacks are detected in a real-world environment. In addition to offensive cybersecurity techniques, the Cybersecurity Internship Program also included various Blue Teaming techniques that focused on protecting organizations using continuous monitoring, analysis of incidents, and digital forensics investigations. Finally, in the third phase of the Cybersecurity Internship Program, the trainees were exposed to various Artificial Intelligence and Machine Learning techniques in cybersecurity. Finally, a total of seven trainees completed the Cybersecurity Internship Program under the guidance of Instructor Muhammad Uzair and Laiba Saleem.

### **2.3.2 Introduction**

The Cyber Security and AI Security Internship Program was developed with the aim of ensuring that the trainees transition from theory to practical knowledge in the field of cyber security. The training was conducted over the course of two months, with the trainees completing 160 hours of training. The training was structured in such a manner that the trainees were gradually introduced to the practical aspects of cyber security. The training began with the basics of virtualization, learning the basics of network security, exploring the basics of governance and compliance, and information gathering using OSINT.

As the training progressed, the trainees were introduced to the Red Team training modules, where they were taught how security experts identify vulnerabilities in the systems. In the later phase of the training, the trainees were introduced to the Blue Team training modules, where they were taught how experts in the field of cyber security handle security incidents using tools such as SOC.

The internship also provided the participants with an understanding of the role of machine learning in cybersecurity, where the participants learned the different ways in which security data can be utilized to develop simple detection models using Python-based tools.

Throughout the internship, the trainees worked on different labs, exercises, and discussions that helped them enhance both their analytical thinking and documentation skills. The internship was also concluded by the development of capstone projects, where the participants were required to develop complete projects such as penetration testing reports, forensic investigations, or machine learning-based security prototypes, among other things, to show that they can effectively apply the learned concepts in different cybersecurity situations.



### 2.3.3 Overall Objective of the Internship Program

The overall objective of the Cyber Security and AI Security Internship Program was to ensure that the trainees received hands-on experience that would bridge the gap between theoretical knowledge of cybersecurity and industry practices. The internship aimed to create a well-rounded knowledge base of both offensive and defensive cybersecurity by exposing trainees to Red Team exercises such as ethical hacking, vulnerability assessment, penetration testing, and Blue Team exercises such as security monitoring, incident investigation, vulnerability management, and digital forensics.

Trainees were encouraged to enhance their knowledge and skills by participating in various exercises and security scenarios that would enable them to become better critical thinkers and documenters, as required by a professional work environment. The internship also offered trainees an opportunity to be exposed to new and emerging fields such as the use of machine learning in cybersecurity, enabling them to understand how these new technologies can be used to detect threats and perform automation.

This approach ensures that student innovation contributes directly to UET's ongoing mission of linking education, research, and industry for national development.

### 2.3.4 Cyber Security Internship Outline

2-Month Cyber Security Outline	
	Course Title: Cyber Security (KCTF) Duration: 2 Months (8 Weeks / 40 Working Days) Hours: 4 hours per day Total Contact Hours: 160 hours Total Trainees: 11 Instructor's Name: Muhammad Uzair

Day	Topic
Day 1 : Onboarding & Environment	i) Orientation, rules, NDAs. Lab walkthrough. ii) Install/configure Kali VMs, snapshots, vulnerable VMs. iii) Mini task: push a README to repo.
Day 2 : Installation of Linux, Metasploit, windows VM	Virtualization basics, networking (NAT/Host-only/Bridged), VM snapshots, safe lab structure. VirtualBox/VMware, Kali, Metasploitable, Windows VM (optional). Build the lab: Kali + Metasploitable + Windows VM. Verify connectivity, snapshot baseline, document IPs + network mode



Day	Topic
Day 3 : GRC, NIST, ISO Checklist	Practice Governance, Risk, and Compliance thinking in a hands-on Task.
Day 4 : AI Jailbreak Module	Learn Jailbreak Try to Jailbreak LLM's and Find a 5 AI that have not Any Restrictions with Link
Day 5 : Information Gathering (Passive+Active)	Concepts: whois, DNS, OSINT, subdomain enumeration. ii) Tools: Amass, Sublist3r, crt.sh, theHarvester, SpiderFoot (demo). iii) Lab: collect OSINT for a sample domain (authorized lab domain).Nmap basics, flags, service detection, version detection. Tools: Nmap, Masscan. Lab: host discovery + port scan of Metasploitable VM; parse results.i)
<b>RED TEAM WEEKS</b>	
Day 6 : Information Gathering (Active), Web Basics & Burp Suite	HTTP basics (request/response, headers, cookies, status codes) Sessions & cookies basics
Day 7 : Input Validation & XSS with DOM	Input/output flow, Reflected vs Stored XSS, Where XSS appears in real apps. Lab: DVWA / Juice Shop, Demonstrate XSS, Write short remediation notes, DOM XSS, sinks/sources, common anti-patterns (innerHTML, eval, etc.)
Day 8 : SQL Injection, Adv	What SQLi is, why it works, where it appears (login/search/filter)Detect SQLi signals in a test app; verify safely + write remediation notes, Blind SQLi (boolean/time), SQLi impact, limiting damage.sqlmap (concept + safe usage in labs), compare manual vs automated testing
Day 9 : Session Management and Hijacking	Session fixation, cookie flags (HttpOnly/Secure/SameSite), token replay concepts JWT basics + common pitfalls (high level), logout/session invalidation, Cookie stealing, token replay, WebSocket hijacking. Lab: demonstrate session hijack on test app + mitigation.
Day 10 : CSRF (Cross-Site Request Forgery)	What CSRF is, when it works, cookies + browser behavior, same-site protections CSRF tokens, SameSite cookie strategy, origin/referer validation (conceptual), re-auth for sensitive actions
Day 11 : Authentication (Common Failures)	Weak passwords, credential stuffing concepts, brute-force protections, lockouts.MFA basics, password storage basics (hashing + salting at a high level)
Day 12 : Access Control	IDOR, missing authorization checks, role-based access control pitfalls In a training app, test whether users can access other users' objects/resources; document fixes
Day 13 : File Upload Attacks & Handling	Unsafe file handling, content-type trust issues, extension tricks.Storage separation, validation strategy, scanning, size limits, safe serving
Day 14 : Privilege Escalation Linux/Windows	Local enumeration, kernel exploits overview. Tools: LinPEAS, WinPEAS, sudo misuse. Lab: escalate on a vulnerable VM.



Day	Topic
Day 15 : Metasploit Deep Dive	Modules, payloads, pivoting, post-exploitation basics. Lab: full exploit chain on Metasploitable (authorized).
Day 16 : Password Attacks & Hash Cracking	Hydra, John the Ripper, hashcat basics. Lab: crack captured hashes, explain salting.
Day 17 : Persistence & Evasion	Backdoors, basic rootkit concepts, AV evasion ethics (demo only with lab malware). Lab: create reversible persistence and document detection/removal.
Day 18 : Social Engineering Principles	Psychology, phishing types, voice phishing (vishing) overview. Tools: SET (demo).
Day 19 : WiFi Pineapple & Wireless Attacks	Pineapple usage, rogue APs, captive portals, WPA/WPA2 attacks overview. Tools: WiFi Pineapple, Aircrack-ng (demo in isolated wireless lab).
Day 20 : RP Spoofing & MitM	Tools: Ettercap, Bettercap. Lab: Man-in-the-Middle demo on isolated network.
<b>BLUE TEAM WEEKS</b>	
Day 21 : Log Analysis Basics	Identify suspicious log entries, Understand timestamps, IPs, users (LAB)
Day 22 : EDR/XDR Fundamentals (Endpoint Attacks)	Identify suspicious processes, Map activity to MITRE ATT&CK (LAB)
Day 23 : EDR/XDR Deep Dive (Incident Response)	Timeline Analysis, Root cause identification (LAB)
Day 24 : Network Security Monitoring	Use Wireshark, Identify malicious traffic PCAP (LAB)
Day 25 : Threat Intelligence (TI)	Wazuh Manager + Agent (single VM setup), IP reputation check Using Python Script Add VirusTotal, AbuseIPDB, AlienVault OTX API
Day 26 : Vulnerability Management	Local Linux VM, Metasploitable2 (optional), Open ports, Services, Known vulnerabilities, Detect OS-level CVEs, Assign CVSS scores Using Wazuh Vulnerability Detection, Create a Table and Decide: Patch now, Monitor, Accept risk
Day 27 : SOAR Concepts	SOAR concepts, Playbooks & automation, Alert enrichment , Create a Automation Script in Python for SOAR (LAB)
Day 28 : Server Security & Windows + Linux Hardening	Linux Forensics - Suspicious Activity, Log review, Detect unauthorized access, Run Commands in Windows and Linux Vulnerable Machines Detect Unauthorized users, Suspicious processes, Persistence mechanisms, Weak security configurations (LAB)
Day 29 : Threat Hunting + Cloud and System Forensic Manual Lab Setup	S3CredentialsHunt (LAB), CTF Challenges Investigative Reversing 0,1,3 (LAB)
Day 30 : Final SOC Report with Compliances	Final SOC Report with Applying Compliances.



Day	Topic
<b>LLM SECURITY WEEK</b>	
Day 31 : Intro to ML in Security	Data types, features, supervised vs unsupervised for intrusion detection.
Day 32 : Data Collection & Labeling	Collect logs/pcaps from lab label events (phishing vs benign).
Day 33 : Basic Models	Build/validate a simple phishing URL classifier or anomaly detection using Scikit-learn.
Day 34 : Evaluation & Explainability	Metrics (precision/recall), confusion matrix, explain features.
Day 35 : Integration with PhD Hybrid Framework	How intern projects feed dataset/models to your PhD hybrid architecture (rule-based + ML + behavioral).
Day 36 - 38 : Team Capstone Project	Each team finalizes: pentest + remediation report OR forensic investigation OR hardware research OR ML model.
Day 39 : Formal Presentations	15-20 minute demo + Q&A per team. Evaluate on technique, documentation, and ethics.
Day 40 : Graduation, Feedback & Next Steps	Certificates, peer reviews, publishable artifacts (lab blog posts), proposals for paid services or courses. Final review meeting: convert best projects to lab deliverables (workshops, paid pentest offering, or research paper).



## 2.3.5 PoC Projects Developed by Students During the Internship

### 2.3.5.1 SOC RAG Analyst

#### Objective:

To develop an AI-powered cybersecurity assistant that supports Security Operations Center (SOC) analysts by automatically analyzing security logs, correlating threat intelligence, and generating structured incident reports. The system leverages a Retrieval-Augmented Generation (RAG) architecture to combine internal security telemetry with external threat intelligence sources such as the National Vulnerability Database (CVE) and the MITRE ATT&CK framework, enabling faster investigation and more informed security decisions.

#### Problem:

Modern SOC environments generate large volumes of alerts and log data from multiple security tools. Analysts often face alert fatigue, fragmented threat intelligence sources, and time-consuming manual correlation processes when investigating potential incidents. This slows down threat detection and response, increasing the risk of undetected attacks. There is a growing need for intelligent systems that can automatically analyze logs, correlate vulnerabilities and adversary behaviors, and present structured insights to security teams.

#### Key Features:

- Automated ingestion and analysis of security logs in JSON and CSV formats.
- Correlation of log events with CVE vulnerability intelligence from the National Vulnerability Database.
- Mapping of detected activities to adversary behaviors defined in the MITRE ATT&CK framework.
- Retrieval-Augmented Generation architecture for contextual threat analysis.
- Automated generation of machine-readable JSON threat reports containing severity, mapped techniques, and recommended response actions.
- Risk scoring model based on log severity, CVSS vulnerability scores, and MITRE ATT&CK impact stages.

#### Tools & Technologies:

Python, LangChain, FastAPI, OpenAI GPT / Llama-based LLMs, SentenceTransformers, ChromaDB, Streamlit, JSON/CSV log datasets, CVE data from the National Vulnerability Database, MITRE ATT&CK framework, Docker containerization.



### **Expected Outcome:**

The Proof of Concept will demonstrate a working prototype capable of ingesting security logs, correlating them with external threat intelligence, and generating structured threat reports to assist SOC analysts during investigations. The system aims to reduce manual analysis effort, improve investigation speed, and provide clearer threat context, establishing a foundation for integrating AI-assisted intelligence analysis into modern cybersecurity operations.

### **2.3.5.2 AI-Assisted Controlled Red Team Attack Simulation Lab**

#### **Objective:**

To develop a controlled virtual cybersecurity lab that simulates real-world red team attack scenarios in a safe and isolated environment. The system enables students and instructors to execute structured cyberattack simulations, observe attacker techniques, and generate automated vulnerability reports. The objective is to provide hands-on ethical hacking training while demonstrating the full attack lifecycle from reconnaissance to risk analysis.

#### **Key Features:**

- Automated attack execution engine capable of scheduling and running attack simulations.
- Credential capture simulation to demonstrate phishing attacks using dummy accounts.
- Multi-stage attack lifecycle visualization showing reconnaissance, exploitation, and reporting phases.
- Risk scoring module that classifies vulnerabilities based on severity and potential impact.
- Automated vulnerability reporting that summarizes findings, impacts, and recommended mitigation steps.
- Isolated virtual network environment ensuring safe and ethical testing conditions.

#### **Tools & Technologies:**

Bash & Python, Kali Linux security tools, Custom Dashboard, VirtualBox for virtualization, structured logging systems for capturing attack results and system responses.

#### **Expected Outcome:**

The Proof of Concept will deliver a functional virtual lab capable of executing controlled red team attack simulations against vulnerable systems. The prototype will demonstrate how automated attack execution, vulnerability detection, and structured reporting can support cybersecurity education. By providing a safe environment to observe and analyze real



attack techniques, the lab will help improve practical learning outcomes and prepare students for professional roles in ethical hacking, penetration testing, and security operations.

### **2.3.5.3 LLM Prompt Injection Detection Engine**

#### **Objective:**

To develop an intelligent security engine that detects and analyzes prompt injection attacks targeting Large Language Models (LLMs). The system evaluates user prompts before they reach the AI model, identifying malicious intent, hidden instructions, and attempts to bypass safety mechanisms. The goal is to protect AI applications by providing real-time detection, risk scoring, and explainable security analysis.

#### **Key Features:**

- Rule-based keyword detection engine that identifies known malicious instructions such as jailbreak attempts, system prompt extraction, and safety bypass commands.
- Machine learning classifier that evaluates prompt intent using natural language processing techniques to detect manipulation or policy override attempts.
- Security layer bypass analyzer that determines how many AI protection layers the prompt attempts to circumvent, including input filtering and policy enforcement mechanisms.
- Explainable AI module that provides human-readable explanations describing why a prompt is considered dangerous and which attack techniques are involved.
- Risk scoring engine that assigns a numerical risk score between 0 and 100 based on keyword severity, machine learning probability, and bypass attempts.
- Prompt classification system that categorizes inputs as Safe, Suspicious, or Malicious, with optional sanitized prompt recommendations.

#### **Tools & Technologies:**

Python, natural language processing libraries, machine learning classification models, curated prompt injection datasets, Hugging Face adversarial prompt datasets, REST API interfaces, and web-based dashboard visualization for monitoring prompt analysis results.

#### **Expected Outcome:**

The Proof of Concept will demonstrate a working security layer capable of detecting prompt injection attempts and providing explainable risk analysis before prompts reach the AI



system. The prototype will evaluate prompt safety, generate structured detection reports, and classify malicious inputs with high accuracy. This solution establishes the foundation for integrating proactive AI security controls into LLM-based applications and enterprise AI platforms.

#### **2.3.5.4 SentinelLLM: AI Data Leakage Prevention Gateway**

##### **Objective**

To build a multi-agent AI system that enhances raw or informal text into clear, professional, and well-structured writing by improving grammar, tone, clarity, and consistency while preserving the original meaning.

##### **Key Features:**

- Tri-Layer Threat Detection: PII & secret detection, prompt injection classifier, and policy enforcement engine.
- Weighted Risk Scoring: Aggregates multiple threat signals into a unified risk score for each request.
- Server-Side Token Orchestration: API keys and secrets stored securely; never exposed client-side.
- Role-Based Access Control (RBAC): Distinct permissions for Admin, Analyst, and User roles.
- Explainable AI Dashboard: Displays triggered rules, risk contributions, and incident logs in real time.

##### **Tools & Technologies**

Python (FastAPI), Next.js, PostgreSQL, Docker, BERT/RoBERTa-based transformer models, Redis, OAuth2, ELK Stack / Grafana.

##### **Expected Outcome**

The PoC validates a secure AI middleware architecture capable of preventing data leakage, enforcing compliance, and supporting safe AI adoption in controlled enterprise or academic environments.

#### **2.3.5.5 AI Data Poisoning Detection System**

##### **Objection:**

To develop an AI-powered framework that detects and mitigates poisoned training samples in machine learning pipelines. The system aims to safeguard model integrity, restore robustness after adversarial manipulation, and provide actionable insights through an interactive analytics dashboard.



### **Key Features:**

- **Controlled Poisoning Simulator:** Configurable injection of adversarial samples with adjustable poisoning rates.
- **Isolation Forest Anomaly Detection:** Unsupervised detection of statistically inconsistent or suspicious samples.
- **Automated Data Sanitization:** Removes flagged samples and retrains models to restore accuracy.
- **Security Impact Analytics:** Quantitative evaluation of model performance across clean, poisoned, and defended datasets.
- **Interactive Dashboard:** Streamlit-based visualization for poison rate adjustment, detection statistics, and accuracy comparison.

### **Tools & Technologies**

Python, Scikit-learn, Streamlit, Logistic Regression, Isolation Forest, NumPy, Pandas

### **Expected Outcome:**

This PoC validates the feasibility of a lightweight, modular AI security system suitable for academic experimentation, with potential extension to enterprise ML pipelines and real-time data environments.

#### **2.3.5.6 Dark Web Credential Watcher**

##### **Objective**

To develop a cybersecurity monitoring system that continuously scans the dark web and underground hacker communities for leaked credentials associated with an organization's domains, employee emails, or strategic keywords. The system aims to provide early detection of exposed login data and enable security teams to respond quickly to potential account compromise.

##### **Key Features:**

- Dark web crawling using Tor-routed bots to anonymously scrape hacker forums, paste sites, and Telegram leak channels.
- Watchlist-based monitoring where analysts define domains, employee emails, and keywords to track.



- Credential extraction using Regex patterns and spaCy Named Entity Recognition (NER) for identifying emails, passwords, and related data.
- AI-based risk scoring that classifies findings as Critical, High, Medium, or Low depending on the sensitivity of exposed information (plaintext credentials, hashed passwords, or email-only records).
- Automated alerting and secure logging that sends notifications to Slack, email, PagerDuty, or SIEM platforms while storing encrypted records with a full audit trail.
- Integration with breach intelligence sources to enrich alerts with historical breach data.

### **Tools & Technologies**

Python 3.11, Playwright, HTTPX, Tor, stem, spaCy, Regex, PostgreSQL, Redis, FastAPI, WebSocket APIs, React, Tailwind CSS, Have I Been Pwned (HIBP) API.

### **Expected Outcome**

A working prototype capable of detecting leaked credentials associated with monitored domains or users across dark web sources. The PoC will demonstrate automated credential discovery, risk classification, real-time alerting, and secure storage of findings. This validates the feasibility of deploying a continuous credential intelligence platform that helps organizations detect data exposure early and strengthen their incident response and account protection strategies.

### **2.3.5.7 SaaS Vendor Security Risk Assessment System**

#### **Objective**

To develop an automated cybersecurity assessment system that evaluates the security posture of third-party SaaS vendors by analyzing publicly accessible infrastructure data. The system performs automated scans across DNS configurations, web security headers, open-source intelligence (OSINT) sources, and breach intelligence databases to identify potential vulnerabilities and security exposures. The goal is to provide organizations with a structured risk score and clear remediation guidance before integrating external vendors into their ecosystem.

#### **Key Features:**

- Automated DNS security analysis including SPF, DKIM, and DMARC configuration checks, along with detection of potential zone transfer vulnerabilities.



- Web server security assessment through HTTP header audits, including checks for HSTS, Content Security Policy (CSP), X-Frame-Options, and secure HTTPS redirect enforcement.
- OSINT-based reconnaissance that gathers domain intelligence such as subdomains, exposed services, open ports, and domain reputation from multiple external data sources.
- Breach intelligence monitoring to identify historical data leaks, compromised credentials, and domain exposure in public breach repositories.
- Composite risk scoring engine that calculates a weighted security score between 0–100 based on findings across DNS, HTTP headers, OSINT data, and breach intelligence.
- Automated PDF report generation containing executive summaries, module-level findings, severity classifications, and recommended remediation steps.

### **Tools & Technologies**

Python 3.11, FastAPI, dnspython, aiohttp, ReportLab, React 18 dashboard interface, Docker Compose for containerized deployment, OSINT data sources such as crt.sh, Shodan, and urlscan.io, and breach intelligence sources including HaveIBeenPwned and BreachDirectory.

### **Expected Outcome**

The Proof of Concept will deliver a functional vendor security assessment platform capable of scanning SaaS vendor domains, analyzing multiple security indicators, and generating structured risk reports. The system will demonstrate how automated external intelligence collection and risk scoring can support vendor risk management programs, helping organizations identify potential security weaknesses before engaging with third-party services.



### 2.3.6 Project Summary

S. No	Project Title	Category	PoC Document	Status
1	SOC RAG Analyst	AI Security / Blue Team	Yes	Completed
2	AI-Assisted Controlled Red Team Attack Simulation Lab	AI Security / Red Team	Yes	Completed
3	AI Data Poisoning Detection	AI Security / MlSecOps	Yes	Completed
4	LLM Prompt Injection Detection	AI Security / MLSecOps	Yes	Completed
5	SentinelLLM	AI Security / MLSecOps	Yes	Completed
6	Dark Web Credential Watcher	Blue Team / Zero Trust	Yes	Completed
7	SaaS Vendor Security Risk Assessment System	GRC	Yes	Completed

### 2.3.7 Conclusion

The completion of the Cyber Security and AI Security Internship Program (2 Months / 160 Hours) marks an important step in preparing trainees for practical roles in today's cybersecurity environment. Over the eight-week program, participants gradually progressed from learning foundational cybersecurity concepts to working on hands-on technical tasks in controlled lab environments. They gained practical exposure to ethical hacking, web application and network penetration testing, vulnerability assessment, security monitoring, digital forensics, and incident investigation. These activities helped trainees understand both how attacks occur and how organizations detect and respond to them.

The internship also introduced the growing role of artificial intelligence and machine learning in cybersecurity, allowing trainees to explore how modern technologies can support threat detection and security analysis. Through guided labs and project work,



trainees applied their learning to real scenarios and developed Proof-of-Concept (PoC) projects, along with technical documentation and presentations that reflected their understanding of cybersecurity practices.

The success of this internship reflects the commitment of the trainees, the guidance provided by the instructors, and the support of the National Centre of Artificial Intelligence (NCAI) Lab. Through initiatives like this program, the NCAI Lab continues to support its mission of promoting research, innovation, and practical learning in emerging technologies. By creating opportunities for hands-on training and applied projects, the lab helps prepare students and young professionals to contribute effectively to the evolving fields of cybersecurity and AI-driven security solutions.



## 2.4 Game Design & Development Internship



**Instructor:** Ms. Taiyaba Sanaullah

**Assistant Coordinator:** Mr. Muhammad Ayaz



### **2.4.1 Executive Summary**

The 2-month (160-hour) Game Development Internship Program conducted at the NCAI Lab provided trainees with a structured, hands-on learning experience in Unity game development, C# scripting, game design principles, physics systems, AI mechanics, UI implementation, and mobile/WebGL deployment. Over the course of 8 weeks and 40 working days, interns progressed from foundational Unity concepts to developing complete 2D and 3D game projects and interactive Proof-of-Concept (PoC) systems. Under the guidance of Instructor Ayaz Mahmood, trainees demonstrated significant technical growth, creative problem-solving abilities, gameplay system design expertise, and end-to-end game development capabilities.

### **2.4.2 Introduction**

The Game Development Internship Program was designed to bridge theoretical knowledge and real-world game production by engaging trainees in practical, daily hands-on development tasks. Conducted at the National Centre of Artificial Intelligence (NCAI) Lab, the internship followed a structured weekly framework that progressively introduced trainees to core game development concepts, Unity fundamentals, C# scripting, and interactive system design. Each week built upon prior learning, enabling interns to gain confidence and mastery in essential tools, workflows, and gameplay mechanics.

Throughout the 160 contact hours, trainees worked on guided exercises, graded mini-projects, game prototypes, and collaborative design sessions. The internship emphasized not only gameplay programming but also critical areas such as physics integration (RigidBody, Colliders), character controllers, AI behavior using NavMesh, UI implementation, animation systems, scene management, debugging, performance optimization, and deployment to Android and WebGL platforms.

By the end of eight weeks, trainees were equipped with both the technical expertise and creative design skills required to develop complete 2D and 3D games. The program concluded with capstone projects and Proof-of-Concept (PoC) game systems, giving interns real-world experience in end-to-end game production from concept design and development to testing, optimization, and final presentation.

### **2.4.3 Overall Objective of the Internship Program**

The overarching objective of the Game Development Internship Program is to provide participants with hands-on, project-based experience that bridges the gap between academic learning and real-world game production. Through the development of interactive Proof of Concept (PoC) game projects, interns strengthen their technical expertise in Unity and C# while also enhancing their creativity, gameplay design skills, and problem-solving abilities.



In addition to technical development, trainees cultivate essential professional competencies including teamwork, communication, project documentation, version control practices, and presentation skills all of which are critical for success in the gaming and software development industries. Each internship cycle culminates in a fully functional game prototype or interactive system, which is presented to faculty members, industry professionals, and potential collaborators for feedback and future development opportunities.

Furthermore, each project team is required to prepare a comprehensive PoC document along with a structured PowerPoint presentation outlining the game concept, design objectives, technical implementation, development roadmap, and expected outcomes. These presentations simulate real-world pitching environments, helping interns understand how to communicate their ideas professionally to stakeholders and potential sponsors. This structured approach ensures that student-developed game projects contribute meaningfully to the broader vision of integrating education, creativity, technology, and industry collaboration for sustainable growth and innovation.

#### 2.4.4 Game Design & Development Internship Outline

2-Month Game Development Outline	
	Course Title: Game Design & Development Duration: 2 Months (8 Weeks / 40 Working Days) Hours: 4 hours per day Total Contact Hours: 160 hours Total Trainees: 10 Instructor's Name: Ayaz Mahmood

No.	Week	Day	Topic
1	Week 1	Day 1	Unity Installation, Interface Overview
	Week 1	Day 2	Unity Layout, Project Setup, GameObjects
	Week 1	Day 3	Transforms, Prefabs, Layers & Tags
	Week 1	Day 4	Unity Physics: Rigidbody, Colliders, Triggers
	Week 1	Day 5	Basic UI Elements (Buttons, Panels, Text)
2	Week 2	Day 6	C# Basics: Syntax, Variables, Data Types
	Week 2	Day 7	If/Else, Switch, Loops in C#
	Week 2	Day 8	Unity Input System & Player Movement



No.	Week	Day	Topic
	Week 2	Day 9	Camera Follow & Jump System
	Week 2	Day 10	Score System, Game Over & Win Conditions
3	Week 3	Day 11	Spawning Objects & Randomization
	Week 3	Day 12	Enemy AI: Chase Player with NavMesh
	Week 3	Day 13	Health & Damage System (Player & Enemy)
	Week 3	Day 14	Inventory: Pickups, Collectibles
	Week 3	Day 15	Scene Management & Level Transitions
4	Week 4	Day 16	UI Menus: Start, Pause, Game Over
	Week 4	Day 17	Unity Particle Systems (effects, hit FX)
	Week 4	Day 18	Audio Integration: BGM & SFX
	Week 4	Day 19	Build for Android (APK Creation)
	Week 4	Day 20	Mid-Course Review & Testing
5	Week 5	Day 21	Introduction to Blender UI & Tools
	Week 5	Day 22	Modeling: Basic Props (Crate, Barrel)
	Week 5	Day 23	Modeling: Complex Object
	Week 5	Day 24	UV Unwrapping & Texture Mapping
	Week 5	Day 25	Exporting Models to Unity
6	Week 6	Day 26	Rigging Human Character (Blender)
	Week 6	Day 27	Keyframe Animation: Walk, Idle
	Week 6	Day 28	Exporting Animation to Unity
	Week 6	Day 29	Animator Controller Setup
	Week 6	Day 30	Character Integration & Control in Unity
7	Week 7	Day 31	Designing 2D Sprites in Photoshop
	Week 7	Day 32	Creating Backgrounds & UI Icons
	Week 7	Day 33	Creating a 2D Level in Unity
	Week 7	Day 34	Adding Touch & Joystick Controls
	Week 7	Day 35	Finalizing UI & Mobile Testing
8	Week 8	Day 36	Start Final Mini Project (Team-based)
	Week 8	Day 37	Continue Development (UI, Gameplay, Levels)
	Week 8	Day 38	Polishing: Effects, Audio, Animations
	Week 8	Day 39	APK Build, Bug Fixing, Submission
	Week 8	Day 40	Final Project Presentation & Feedback



## 2.4.5 PoC Projects Developed by Students During the Internship

### 2.4.5.1 Project 1: YouTube Animation Channel (Rhymes & Short Educational Content)

#### Objective:

To conceptualize, animate, and publish short animated videos (rhymes and educational content) on YouTube, demonstrating skills in storytelling, animation workflow, audio synchronization, and content publishing.

#### Key Features:

- Animated Rhymes & Shorts: Simple 2D/3D animated characters performing rhymes and short stories.
- Audio Synchronization: Voice, music, and sound effects synced with animations.
- Visual Storytelling: Colorful environments, expressive character movements, and transitions.
- YouTube Publishing: Thumbnail design, video upload, and basic channel optimization.

#### Tools & Technologies:

After Effects or Premiere Pro, Audacity, Photoshop, YouTube Studio.

#### Team Roles:

- Animator: Character and scene animation.
- Audio Editor: Voice and music synchronization.
- Content Designer: Scriptwriting and rhyme structure.
- Publisher: Video upload and channel management.

#### Expected Outcome:

A live YouTube channel featuring animated rhyme-based content, showcasing animation, audio-visual synchronization, and digital content creation skills.



### 2.4.5.2 Project 2: Hop N Pop Runner Game (WebGL / Android)

#### **Objective:**

To develop a fast-paced casual runner-style game where the player moves forward while the environment shifts vertically, featuring spikes, obstacles, and timing-based challenges.

#### **Key Features:**

- Player Movement: Forward motion with vertical up/down controls.
- Dynamic Environment: Platforms and hazards move up and down dynamically.
- Obstacles & Spikes: Timing-based avoidance mechanics.
- Scoring System: Distance-based score with increasing difficulty.
- Platform Support: WebGL and Android builds.

#### **Tools & Technologies:**

Unity 2022+, C#, WebGL / Android Build, Photoshop (UI), Audacity (sound).

#### **Team Roles:**

- Game Programmer: Core mechanics and environment logic.
- Level Designer: Obstacle placement and difficulty tuning.
- UI Designer: Score, pause, and game-over screens.
- QA Tester: Gameplay testing and balancing.

#### **Expected Outcome:**

A lightweight, addictive casual game suitable for WebGL or Android, demonstrating player control, obstacle logic, and environment-driven gameplay.



### 2.4.5.3 Project 3: Plane Simulation Game (WebGL)

#### Objective:

To design a browser-based plane simulation game focusing on basic flight physics, smooth controls, and environmental interaction, optimized for WebGL deployment.

#### Key Features:

- Plane Controls: Throttle, pitch, and directional movement.
- Flight Physics: Simplified lift, speed, and gravity simulation.
- Environment Interaction: Takeoff, flight, and crash mechanics.
- Camera System: Follow and cinematic camera views.
- WebGL Optimization: Performance-friendly assets and controls.

#### Tools & Technologies:

Unity 2022+, C#, WebGL, Blender (plane & terrain models), Photoshop.

#### Team Roles:

- Simulation Developer: Flight mechanics and physics.
- Environment Designer: Terrain and sky setup.
- UI Designer: Speed, altitude, and control indicators.
- QA Tester: Stability and browser performance testing.

#### Expected Outcome:

A playable WebGL plane simulation prototype demonstrating physics-based movement, camera systems, and browser-optimized Unity development.



#### 2.4.5.4 Project 4: AR Anatomy (Lungs Explorer)

##### Objective:

To design and develop an interactive Augmented Reality (AR) anatomy application showcasing the human lungs in 3D, allowing users to explore, visualize, and learn about the respiratory system through immersive AR interactions.

##### Key Features:

- **AR Model Visualization:** Interactive 3D model of the lungs displayed on a flat surface using AR Foundation.
- **Exploration Mode:** Users can tap on different parts of the lungs to highlight them and view labeled anatomical information.
- **Animation System:** Breathing animation showing the expansion and contraction of the lungs to demonstrate the breathing process.
- **Information UI:** Educational descriptions explaining the functions of major lung parts such as bronchi, bronchioles, and alveoli.
- **Sound & Effects:** Breathing sound effects and ambient background audio to enhance the learning experience.

##### Tools & Technologies:

Unity 2022+, AR Foundation / ARCore / ARKit, C# Scripting, Blender (for 3D models), Photoshop (for textures).

##### Team Roles:

- **AR Developer:** Responsible for scene setup, AR plane detection, model integration, and user interaction.
- **UI/UX Designer:** Designs the educational interface, labels, and information panels.
- **3D Artist / Animator:** Creates and animates the lungs model and its anatomical parts.
- **QA / Tester:** Tests functionality, performance, and compatibility across supported devices.

##### Expected Outcome:

An educational AR application that demonstrates real-time 3D exploration of the human lungs, enabling users to understand respiratory anatomy through interactive visualization, animations, and informative content.



### 2.4.6 Project Summary

S. No	Project Title	Category	PoC Document	Status
1	Plane Simulation Game	WebGL	Yes	Completed
2	Hop N Pop	WebGL/Android	Yes	Completed
3	AR Anatomy Lungs	AR Android	Yes	Completed
4	Youtube Animation	Rhymes/Educational	Yes	Completed

### 2.4.7 Internship Program Success Stories

S. No	Intern Name	Achievement	Description
1	Husnain Shahid	Job Replacement	Secured a professional job opportunity during the internship period reflecting the practical skills and experience gained through the program.
2	Qamar Abbas	Final Year Project	Successfully developed and completed the final project during the internship, demonstrating strong skills in Unity game development and project implementation.
3	Multiple Interns	Freelancing on Fiverr	Some interns began freelancing on Fiverr, applying their skills in game development, animation and digital design to real-world client projects.



## 2.4.8 Conclusion

The completion of the Game Development Internship Program (2 Months / 160 Hours) marks a significant milestone in preparing students for opportunities in the rapidly growing game development and interactive technology industry. Throughout the 8-week intensive training, trainees demonstrated strong technical growth by progressing from Unity fundamentals and C# scripting to developing complete 2D, 3D, and AR-based interactive applications. Interns worked on hands-on exercises, gameplay mechanics, UI systems, animation integration, and performance optimization while developing impactful Proof-of-Concept (PoC) projects such as casual games, AR educational applications, and multimedia content systems.

The dedication shown by the interns, the guidance of the instructors, and the support from the NCAI Lab collectively contributed to a successful internship cycle. The PoC projects developed during the program, including AR educational applications, runner-style games, and animated multimedia projects, provide a strong foundation for future development, creative innovation, and potential commercialization.

This internship reflects UET's commitment to nurturing industry-ready game developers and strengthening its role as a center for innovation, interactive technology development, and applied digital creativity. We look forward to continuing this momentum in future internship cycles and expanding opportunities for students to engage in impactful game development and immersive technology projects.



## 2.5 Graphic Designing & 2D Animation



**Instructor:** Mr. Muhammad Nauman Hanif  
**Assistant Coordinator:** Mr. Shakeel Ahmed



### 2.5.1 Executive Summary

The **Graphics Designing & 2D Animation Internship (Cycle-3, Jan–Mar 2026)** successfully equipped students with essential practical skills in **visual design, creative storytelling, motion graphics, 2D animation, and digital content production.**

Throughout the internship, interns were involved in a variety of real-time creative assignments, where they developed a full range of design and animation deliverables. Their work included logo creation, posters, social media graphics, thumbnails, short-form videos, animated content, and script-based edited videos. During this process, students gained hands-on experience with professional design software, animation workflows, layout and composition principles, color theory, typography, and video editing methods, enabling them to create visually engaging and high-quality content.

Alongside these activities, interns developed a Proof of Concept (PoC) – Motion Graphics & Animation Hub, demonstrating how educational and informational content can be elevated through dynamic motion design and animation. As part of this PoC, students created animated explainers, motion posters, logo animations, and short informational clips to present concepts in a more engaging and visually appealing way. This PoC highlights how 2D motion graphics and basic animation can enhance digital communication, support visual learning, and improve audience understanding through creative and interactive content.

### 2.5.2 Introduction

The Graphics Designing & 2D Animation Internship, conducted from 05 January to 06 March 2026, has been successfully completed under the National Centre of Artificial Intelligence (NCAI) at UET Lahore. This two-month program provided students with comprehensive, hands-on experience in visual design, motion graphics, and creative content production. The program focused on practical skills in logo design, brand identity creation, poster and social media content designing, video editing, and 2D animation workflows.

Throughout the internship, students were actively involved in organized weekly training sessions, real-time creative tasks, and PoC development, allowing them to turn theoretical design concepts into professional-quality visual work. By the end of the program, interns had created complete sets of creative assets, including logos, posters, social media templates, thumbnails, edited videos, and animated content demonstrating their ability to produce engaging visuals for digital platforms. Their work spanned idea development, visual storytelling, typography, color principles, layout and composition, animation fundamentals, and video editing techniques. The successful execution of this internship reflects the commitment of UET faculty, domain mentors, and the continued support of the



**66-UET and 67-UET alumni sponsors**, ensuring that students gain industry-relevant creative skills that prepare them for future opportunities in the rapidly expanding digital design and animation industry.

### 2.5.3 Overall Objective of the Internship Program

The primary objective of this internship program was to equip students with practical, industry-aligned creative skills through a structured, project-based learning approach. Over the two-month period, interns were trained to understand core concepts of **graphic design, brand identity creation, visual communication, motion graphics, and 2D animation workflows**.

In addition to technical skills, the program emphasized **teamwork, communication, documentation, creative thinking, and professional presentation abilities**. Each team produced a complete **PoC document** and delivered a final creative project demonstration, ensuring that participants gained both creative proficiency and industry readiness. The program supports UET's mission to connect academic learning with industry expectations and foster innovation through hands-on visual content creation.

Graphic Designing & 2D Animation Internship

### 2.5.4 PoC Projects Developed by Students During the Internship

Under the Motion Graphics & Animation Hub Program Proof of Concept, interns are contributing to a creative educational initiative that transforms traditional learning into visually engaging experiences. They are designing 2D motion graphics and basic animation for digital communication, including animated explainers, motion posters, logo animations, and short informational clips. Through this project, interns are applying their design and animation skills to real educational challenges, bridging creativity with education and promoting digital inclusion. The PoC allows them to gain hands-on experience in educational content production while contributing to a sustainable model for visual learning innovation.

During the internship, interns worked on a complete set of **creative design and animation tasks**, following a structured visual production workflow. Each student produced a full range of digital assets, demonstrating their ability to design, animate, and edit content professionally.



### 2.5.5 Graphic Designing & 2D Animation Internship Outline

#### 2-Month Internship Graphic Designing & 2D Animation Outline

Course Title: Graphic Designing & 2D Animation  
 Duration: 2 Months (8 Weeks / 40 Working Days)  
 Hours: 4 hours per day  
 Total Contact Hours: 160 hours  
 Total Trainees: 10  
 Instructor's Name: Muhammad Nauman Hanif

S. No	Week	Day	Topic Details
1	Week 1	Day 1	Photoshop Interface & Workspace Navigation
	Week 1	Day 2	Opening, Saving & Managing Files
	Week 1	Day 3	Canvas Setup – Crop, Resize, straighten
	Week 1	Day 4	Understanding Layers & Layer Masks
	Week 1	Day 5	Image Enhancements (Brightness, Contrast, Exposure)
2	Week 2	Day 6	Selections Tools & Techniques
	Week 2	Day 7	Brush Tool & Colour Correction Basics
	Week 2	Day 8	Retouching Tools – Healing, Clone, Patch
	Week 2	Day 9	Using Adjustment Layers for Editing
	Week 2	Day 10	Smart Objects & Non-Destructive Editing
3	Week 3	Day 11	Applying Filters & Transformations
	Week 3	Day 12	Blend Modes & Opacity Controls
	Week 3	Day 13	Shape Tools & Creating Custom Shapes
	Week 3	Day 14	Pen Tool Basics
	Week 3	Day 15	Layer Styles
4	Week 4	Day 16	Typography & Text Styling
	Week 4	Day 17	Fill Layers – Gradient, Pattern, Colour
	Week 4	Day 18	Project-Based Design Tasks
	Week 4	Day 19	Exporting & File Formats (Web/Print)
	Week 4	Day 20	Mini Photoshop Project
5	Week 5	Day 21	Illustrator Interface & Artboard Setup
	Week 5	Day 22	Navigation, Tools & Workspace Settings
	Week 5	Day 23	Selection & Direct Selection Tools
	Week 5	Day 24	Object Transformation & Alignment
	Week 5	Day 25	Drawing with Pencil, Pen, Shape Tools
6	Week 6	Day 26	Creating & Modifying Paths & Strokes
	Week 6	Day 27	Grouping, Arranging & Layers
	Week 6	Day 28	Custom Icons & Vector Shapes
	Week 6	Day 29	Working with Colours & Swatches



S. No	Week	Day	Topic Details
	Week 6	Day 30	Gradients & Pattern Creation
7	Week 7	Day 31	Appearance Panel & Transparency
	Week 7	Day 32	Typography – Artistic & Paragraph Text
	Week 7	Day 33	Using Grids, Guides & Smart Guides
	Week 7	Day 34	Importing & Managing Images
	Week 7	Day 35	Export Options – Web & Print
8	Week 8	Day 36	Photoshop Final Project
	Week 8	Day 37	Illustrator Final Project
	Week 8	Day 38	Mixed Media Design (Both Tools)
	Week 8	Day 39	Presentation Preparation
	Week 8	Day 40	Showcase + Feedback Session

### 2.5.6 Workflow followed by interns:

- **Logo & Brand Identity Design:**  
Creation of logos, color palettes, typography selections, and basic branding guidelines.
- **Posters & Social Media Creatives:**  
Designing posters, social media templates, announcements, and promotional graphics for digital platforms.
- **Thumbnails & Static Visuals:**  
Designing visually appealing thumbnails and static graphics for videos and social media content.
- **Storyboarding & Concept Sketching:**  
Planning animations and edited videos by creating sketches, visual frames, and structured sequences.
- **Edited Video Production:**  
Creating both scripted and unscripted videos using professional video editing processes and techniques.
- **2D Animation Development:**  
Producing short animated videos by applying core animation principles, motion graphics, character movement, and smooth transitions.
- **Creative Assignments & PoC Development:**  
Using design and animation skills in the development of the PoC, with a focus on visually enhanced educational content.



### 2.5.7 Tools & Technologies:

Canva, Adobe Illustrator, Adobe Photoshop, Adobe After Effects, Cap Cut, VN Editor, Blender, and additional animation/design tools.

### Expected Outcomes:

- Professionally designed logos and brand identity elements
- High-quality posters, social media graphics, and thumbnails
- Edited videos and short 2D animated videos
- A complete PoC showcasing visual learning and educational content creation

### 2.5.8 Project Summary

S. No	Brand Title	Category	Team Size	PoC Document	Status
1	Logo Design Collection	Branding & Visual Identity	1 Intern	Yes	Completed
2	Poster Design Series	Print & Digital Posters	1 Intern	Yes	Completed
3	Social Media Creatives	Digital Content Design	6 Interns	Yes	Completed
4	YouTube/FB Thumbnails	Visual Thumbnails	6 Interns	Yes	Completed
5	Edited Video Set	Scripted & Non-Scripted Editing	4 Interns	Yes	Completed
6	2D Animated Videos	Motion Graphics & Animation	4 Interns	Yes	Completed
7	Storyboard Drafts	Pre-Production Planning	2 Interns	Yes	Completed



S. No	Brand Title	Category	Team Size	PoC Document	Status
8	Motion Graphics & Animation Hub	Educational Visual Content	4 Interns	Yes	Completed

### 2.5.9 Internship Program Success Stories

The Graphics and 2D Design track enabled interns to strengthen their creative and technical skills in digital design. As a result of the training and practical exposure provided during the program, several interns were able to achieve meaningful progress in their professional and academic journeys. Some participants secured job opportunities, others enhanced their ongoing degree studies in related fields such as Graphics and 3D Design, while a number of interns also initiated their freelancing careers in digital design services.

Achievement Category	Number of Interns	Description
<b>Secured Jobs / Internships</b>	2	Interns obtained job opportunities in graphics and design related roles
<b>Academic Skill Enhancement</b>	4	Interns currently pursuing degrees in Graphics/3D Design strengthened their practical skills through the internship
<b>Started Freelancing</b>	5	Interns began offering graphic design services on freelance platforms

### 2.5.10 Conclusion

The successful completion of the Graphics Designing & 2D Animation Internship (05 January – 06 March 2026) marks a significant step in preparing students for emerging opportunities in the digital media and creative design industry. Through eight weeks of structured training, live creative assignments, and practical implementation, interns demonstrated creativity, visual storytelling, and technical proficiency by producing logos, posters, social media creatives, thumbnails, edited videos, and 2D animated videos.

The dedication of the students, guidance of instructors, and support from the **UET alumni sponsors** played a crucial role in making this cycle a success. The outcomes of this internship will contribute to future collaborations, professional portfolio building, and



enhanced career readiness for participants in the field of **graphics designing and animation**.

This successful cycle reflects UET's commitment to nurturing future-ready creative talent and strengthening its position as a leading hub for digital media education.

The next internship cycle (Cycle-4) will start from 01 April 2026, and we look forward to continued support for further expanding this impactful program.



## 2.6 Digital Media Marketing & Entrepreneurship



**Instructor:** Ms. Tayyaba Hayat

**Assistant Coordinator:** Mr. Muhammad Umair



### 2.6.1 Executive Summary

The Digital Media Marketing Internship (Cycle-3, January–March 2026) successfully equipped students with essential practical skills in branding, social media management, SEO, content development, keyword research, audience targeting, and basic website setup & optimization.

Throughout the internship, students successfully built **nine complete brands**, covering all key elements such as logo development, brand identity design, optimized social media profiles, and SEO-focused content planning. They also carried out competitor analysis, keyword research, and on-page SEO activities to improve each brand's online visibility and reach.

As part of this Proof of Concept (PoC) **Women Led Business Digital Support**, interns will assist women entrepreneurs by developing strong digital identities for their businesses. This support includes refining logos, setting up and optimizing social media profiles, and launching introductory marketing campaigns focused on increasing online visibility and building confidence in the digital space.

### 2.6.2 Introduction

The Digital Marketing & Entrepreneurship Internship, conducted from 05 January to 06 March 2026, has been successfully completed under the National Centre of Artificial Intelligence (NCAI) at UET Lahore. This two-month program provided students with comprehensive, hands-on experience in managing digital brands. The program focused on practical skills in content creation, social media management, SEO, Google Ads, and digital campaign execution.

During the internship, students were actively engaged in organized weekly training sessions, hands-on project work, and the development of Proof of Concept (PoC) projects, enabling them to convert theoretical knowledge into practical digital marketing solutions. By the conclusion of the program, interns had successfully planned, developed, and executed **nine complete brand identities**, each supported by strategic content planning, an optimized social media presence, SEO-focused content, and measurable campaign results. Their responsibilities covered logo and brand design, content creation, website development, SEO optimization, social media page enhancement, content calendars, and the execution of campaigns across multiple digital platforms equipping them with the skills required to address real-world marketing challenges.

The successful delivery of this internship highlights the dedication of UET faculty and domain mentors, along with the continued support of **66-UET and 67-UET alumni sponsors**, ensuring that students acquire industry-aligned skills and are well prepared for future opportunities in the rapidly expanding digital marketing landscape.



### 2.6.3 Overall Objective of the Internship Program

The main goal of this internship program was to develop students' practical, industry-relevant skills through a well-structured, project-based learning model. Throughout the two-month duration, interns were trained in essential digital marketing domains such as brand development, social media handling, search engine optimization (SEO), content planning, and online advertising.

Alongside technical training, the program strongly focused on enhancing collaboration, communication, documentation, and professional presentation skills. Each team prepared a comprehensive Proof of Concept (PoC) document and presented a final project demonstration, allowing participants to build both technical expertise and workplace readiness. Overall, the program aligns with UET's vision of bridging academic knowledge with real-world industry requirements while promoting innovation through hands-on project work.

### 2.6.4 Digital Marketing & Entrepreneurship Internship Outline

2-Month Digital Media Marketing & Entrepreneurship Outline	
	Course Title: Digital Media Marketing & Entrepreneurship Duration: 2 Months (8 Weeks / 40 Working Days) Hours: 4 hours per day Total Contact Hours: 160 hours Total Trainees: 10 Instructor's Name: Tayyaba Hayat

No	Week	Day	Topic Details
1	Week 1	Day 1	Introduction to Digital Media Marketing
	Week 1	Day 2	Benefits & Importance in Today's World
	Week 1	Day 3	Keyword Research & Analysis
	Week 1	Day 4	Keyword Tools + AI Assistance in Keyword Research
	Week 1	Day 5	Practical: Keyword Research for Different Niches
2	Week 2	Day 6	Canva Interface + Features
	Week 2	Day 7	Designing Brand Logo & Social Media Posts
	Week 2	Day 8	Product Image Design + Image Optimization
	Week 2	Day 9	Canva Animation + Image Compression



No	Week	Day	Topic Details
	Week 2	Day 10	Practical Designing Tasks
3	Week 3	Day 11	Overview & Setup of Key Platforms: Facebook, Instagram, TikTok, WhatsApp Business
	Week 3	Day 12	FB Page Setup + Management
	Week 3	Day 13	Content Planning & Uploading
	Week 3	Day 14	Meta Business Suite
	Week 3	Day 15	Monthly Schedule + Other Practices
	4	Week 4	Day 16
Week 4		Day 17	Ad Setup
Week 4		Day 18	Target Audience Research
Week 4		Day 19	Ad Restrictions + Budget Estimation
Week 4		Day 20	Practical Ad Setup Demo
5	Week 5	Day 21	Concepts of SEO + Its Types
	Week 5	Day 22	Creating Free Website for Each Student
	Week 5	Day 23	Content Writing
	Week 5	Day 24	SEO Optimization
	Week 5	Day 25	SEO Settings
6	Week 6	Day 26	OFF-Page SEO Factors
	Week 6	Day 27	Types of Links
	Week 6	Day 28	Blog Commenting
	Week 6	Day 29	YouTube Channel SEO
	Week 6	Day 30	YouTube Video SEO
7	Week 7	Day 31	Technical SEO
	Week 7	Day 32	SEO Audits
	Week 7	Day 33	Website Audit Practice + Tools
	Week 7	Day 34	AI Tools for Content Suggestions
	Week 7	Day 35	Practical Task: Complete SEO Audit
8	Week 8	Day 36	Website Development Project
	Week 8	Day 37	SEO Implementation Project
	Week 8	Day 38	Designing Project
	Week 8	Day 39	Social Media Marketing Project
	Week 8	Day 40	Final Presentations + Feedback



### 2.6.5 PoC Projects Developed by Students During the Internship

The Women-Led Business Digital Support (PoC) is a practical initiative designed by developing strong digital identities for their businesses. This support includes refining logos, setting up and optimizing social media profiles, and launching introductory marketing campaigns focused on increasing online visibility and building confidence in the digital space.

During the internship, **nine individual brands** were developed and managed by interns, each following a complete digital marketing workflow:

- **Brand 1** – Chadore (Abaya and hijab)
- **Brand 2** – Evalance (Perfumes)
- **Brand 3** – Coloberry (Stationery & Art supplies)
- **Brand 4** – Canography (Art , painting , calligraphy)
- **Brand 5** – Tymbell (Jewellery)
- **Brand 6** – Medivasive (Medicine)
- **Brand 7** – Mobclothin (Mobile accessories)
- **Brand 8** – Zelyon (Perfumes)
- **Brand 9** – Coreland (real estate)

### 2.6.6 Workflow followed by interns for each brand:

- **Brand Identity & Logo Design:** Complete brand kits were developed, including logos, color schemes, and detailed brand guidelines.
- **Website Setup & Content Writing:** Each intern created a website, conducted keyword research, and produced SEO-friendly written content.
- **Blog Development:** A total of 15 SEO-optimized blog posts were published for each website, incorporating relevant and targeted keywords.
- **On-Page SEO:** Interns improved website pages by optimizing Meta descriptions, headings, image alt texts, and internal links to enhance search engine visibility.
- **Off-Page SEO:** Link-building and additional external SEO techniques were applied to strengthen search engine rankings.
- **Social Media Management:** Social media profiles were created and optimized across platforms such as Facebook, Instagram, WhatsApp, TikTok, and other suitable channels.



- **Campaigns & Ads:** Paid advertising campaigns were planned and executed to boost brand awareness, audience reach, and user engagement.

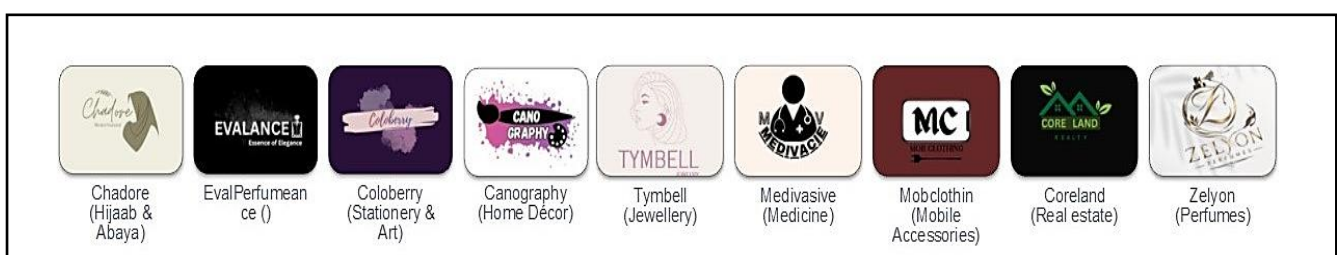
**Tools & Technologies:** Canva, Adobe Illustrator, WordPress, Meta Ads Manager, Google Analytics, Facebook, Instagram, TikTok, WhatsApp Business, Meta Business Suite, and more.

**Expected Outcomes:**

- Fully functional brand identities with consistent branding across all platforms
- SEO-optimized websites with published blogs
- Active social media presence and engagement
- Measurable results from campaigns and ads demonstrating the effectiveness of digital marketing strategies

**2.6.7 Project Summary**

S. No	Brand Title	Category	Team Size	PoC Document	Status
1	Chadore	Abaya & Hijab	1 Intern	Yes	Completed
2	Evalance	Perfumes	1 Intern	Yes	Completed
3	Coloberry	stationery & art	1 Intern	Yes	Completed
4	Canography	Art & Calligraphy	1 Intern	Yes	Completed
5	Tymbell	Jewellery	1 Intern	Yes	Completed
6	Medivasive	Medicine	1 Intern	Yes	Completed
7	Mobclothin	Mob accessories	1 Intern	Yes	Completed
8	Zelyon	Perfumes	1 Intern	Yes	Completed
9	Coreland	Real estate	1 Intern	Yes	Completed





### 2.6.8 Internship Program Success Stories

The internship program not only focused on skill development but also enabled several participants to translate their learning into practical outcomes. Many interns successfully utilized the knowledge and experience gained during the program to secure employment opportunities, start their own online ventures, and support existing businesses in establishing and managing their digital presence. The following summary highlights the key achievements of the interns after completing the program.

Achievement Category	Number of Interns	Description
Secured Jobs / Internships	3	Interns obtained employment opportunities in relevant professional roles
Started Personal Online Brands	2	Interns launched their own online businesses and digital brands
Managing Online Presence for Physical Businesses	4	Interns are managing social media, digital marketing, and online operations for existing businesses

### 2.6.9 Conclusion

The successful completion of the Digital Marketing & Entrepreneurship Internship (05 January – 06 March 2026) marks a significant step in preparing students for emerging opportunities in the digital marketing industry. Through eight weeks of structured training, live project work, and practical implementation, interns demonstrated creativity, strategic thinking, and technical proficiency by developing fully functional brand identities, SEO-optimized websites, and social media campaigns for nine individual brands.

The dedication of the students, guidance of instructors, and support from the UET alumni sponsors played a crucial role in making this cycle a success. The outcomes of this internship will contribute to **future collaborations, professional portfolio building, and enhanced career readiness** for participants in the field of digital marketing.

This successful cycle reflects UET's commitment to **nurturing future-ready talent** and strengthening its position as a leading hub for **digital marketing and entrepreneurship education**.

The next internship cycle (Cycle-4) will start from 01 April 2026, and we look forward to continued support for further expanding this impactful program.



### 3 Hardware Provided and Upgraded by Sponsors

The success of the **January Internship Program 2026 (Cycle-3)** has been further strengthened by the continued hardware support generously provided by UET alumni donors from the **66-UET and 67-UET batches**. Their valuable contributions have played a key role in further upgrading and expanding the AI and multimedia laboratories at **NCAI, UET Lahore**, enabling interns to work with advanced, industry-relevant computing and development platforms.

As part of this cycle, additional high-performance computing resources have been deployed to support AI development, game design, and multimedia content creation activities.

#### 3.1 New High-Performance Workstation



The following are the workstation specifications

- MOBO: MSI PRO B650-S WIFI ATX AM5 DDR5 with 2 years local warranty
- CPU: AMD RYZEN 7 7700 – Tray – with 1 year local warranty
- COOLER: DeepCool AK400 Digital CPU Cooler – Black - with local warranty
- RAM: ADATA 32GB (2×16) DDR5 5600MHz Premier Desktop Memory Stick - with 2 years local warranty
- SSD: LEXAR NQ790 2TB M.2 NVME GEN4 - with 2 years local warranty
- PSU: XPG Pylon 750W 80 PLUS Bronze PSU with 2 years local warranty
- CASE: DarkFlash DF2100 ARGB Mid-Tower ATX Gaming Case – Black with local warranty
- GPU: Zotac Gaming GeForce RTX 5070 Solid 12GB - with 1 year local warranty



## 4 Program Summary and Closing Remarks

The January Internship Program 2026 (Cycle-3) represents another important milestone in UET Lahore's ongoing efforts to combine academic learning with practical, industry-relevant training. What initially started as an alumni-supported initiative has now developed into a collaborative platform that promotes mentorship, innovation, and knowledge sharing. Through this program, students are provided with opportunities to apply their theoretical understanding in practical environments and gain exposure to real-world technological challenges.

Across six specialized domains **including Generative AI, Artificial Intelligence, Cyber Security, Game Design and Development, Graphic Designing and 2D Animation, and Digital Media Marketing and Entrepreneurship**, interns demonstrated strong motivation, creativity, and noticeable technical growth throughout the program. Their Proof of Concept (PoC) projects reflect the essence of practical learning by demonstrating how theoretical knowledge can be applied to real scenarios. These projects included AI-powered assistants, cybersecurity detection systems, AR/VR-based educational tools, automated marketing workflows, and intelligent digital content solutions—highlighting the practical capabilities developed during the internship.

A key highlight of this cycle has been the further strengthening of NCAI's AI and multimedia laboratories, made possible through the generous contributions of UET alumni from the 66-UET and 67-UET batches. The addition of high-performance GPU workstations, upgraded computing systems, and enhanced networking infrastructure has created a professional-grade environment where students can experiment, innovate, and build industry-standard prototypes. These improvements will continue to benefit future internship cycles, faculty research initiatives, and broader innovation programs at UET.

The collaboration between UET's academic community and its global alumni network remains a key factor behind the success of this program. While faculty members and instructors provided structured guidance and mentorship, the alumni community supported the initiative through vision, funding, and technical contributions. Together, these efforts have created a sustainable platform that supports student development and promotes technology-focused learning.

The internship program is also evolving into a structured innovation pipeline, where selected Proof-of-Concept (PoC) projects will be further developed into funded research initiatives and potential startups in collaboration with industry partners and alumni sponsors.

A major highlight of the program was the **closing ceremony, which was presided over by Vice Chancellor Prof. Dr. Shahid Munir (TI)**. During the ceremony, he appreciated the efforts of students, mentors, and organizers, and **personally distributed trophies among the mentors and students** in recognition of their outstanding performance and



achievements. This ceremony marked the successful completion of Cycle-3 and served as an encouragement for future initiatives.

With the successful completion of this cycle, students have finalized their capstone projects, strengthened their professional portfolios, and prepared themselves for industry opportunities, higher studies, and entrepreneurial ventures. A comprehensive final report—summarizing key outcomes, project highlights, and recommendations—has been compiled and shared with all stakeholders and sponsors.

On behalf of UET Lahore and the National Centre of Artificial Intelligence (NCAI), we express our heartfelt gratitude to all alumni sponsors, mentors, instructors, and coordinators whose unwavering support has made Cycle-3 a success. Your continued involvement strengthens UET's capacity to develop future-ready talent and fosters a culture of innovation, leadership, and academic excellence.

This initiative continues to position UET as a leading institution in applied AI education and industry-driven training in Pakistan.

## 5 Acknowledgment of Alumni Sponsors and Mentors

The National Centre of Artificial Intelligence (NCAI) at the University of Engineering and Technology (UET) Lahore extends its sincere gratitude to all alumni sponsors, mentors, instructors, and coordinators whose dedication and support made the **January Internship Program 2026 (Cycle-3)** a resounding success. Their continued involvement has played a vital role in strengthening this initiative and creating meaningful learning opportunities for students.

We express our deepest appreciation to the alumni of the **66-UET and 67-UET batches**, whose generous financial and technical contributions have significantly enhanced the AI and multimedia infrastructure at NCAI. Their support has enabled the provision of modern, high-performance computing resources, allowing students to work on advanced projects in Artificial Intelligence, Cyber Security, Game Development, Design, and Digital Media using industry-relevant tools and platforms.

We also acknowledge the invaluable contributions of the **domain instructors, assistant coordinators, and faculty advisors**, whose commitment, mentorship, and continuous guidance ensured the successful delivery of training across all domains. Their efforts in conducting structured sessions, supervising projects, and supporting students throughout the internship were instrumental in maintaining the high quality and impact of the program.

Special recognition is extended to the **mentors and alumni professionals** who actively engaged with students by sharing their industry experience, providing technical insights,



and guiding project development. Their involvement helped bridge the gap between academic learning and real-world applications, inspiring students to think innovatively and pursue excellence.

We also appreciate the efforts of the **NCAI administrative and coordination team**, whose behind-the-scenes work ensured smooth program execution, effective communication, and successful organization of all activities including training sessions, evaluations, and the closing ceremony.

The success of this internship reflects the strong and growing collaboration between UET's academic ecosystem and its global alumni network. This partnership stands as a model of how collective efforts can contribute to student development, institutional growth, and the advancement of technology education in Pakistan.

As preparations begin for Cycle-4, scheduled to commence on 01 April 2026, we look forward to continued support, engagement, and collaboration from our alumni and partners. Together, we remain committed to expanding this initiative and creating even greater impact for future generations of UET students.

**Prepared by:**

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