AI-HIVE
Building the future with AI tech

NCAI

# AI RESEARCH APPRENTICESHIP PROGRAM

A 2-Week Intensive Research & Innovation Experience



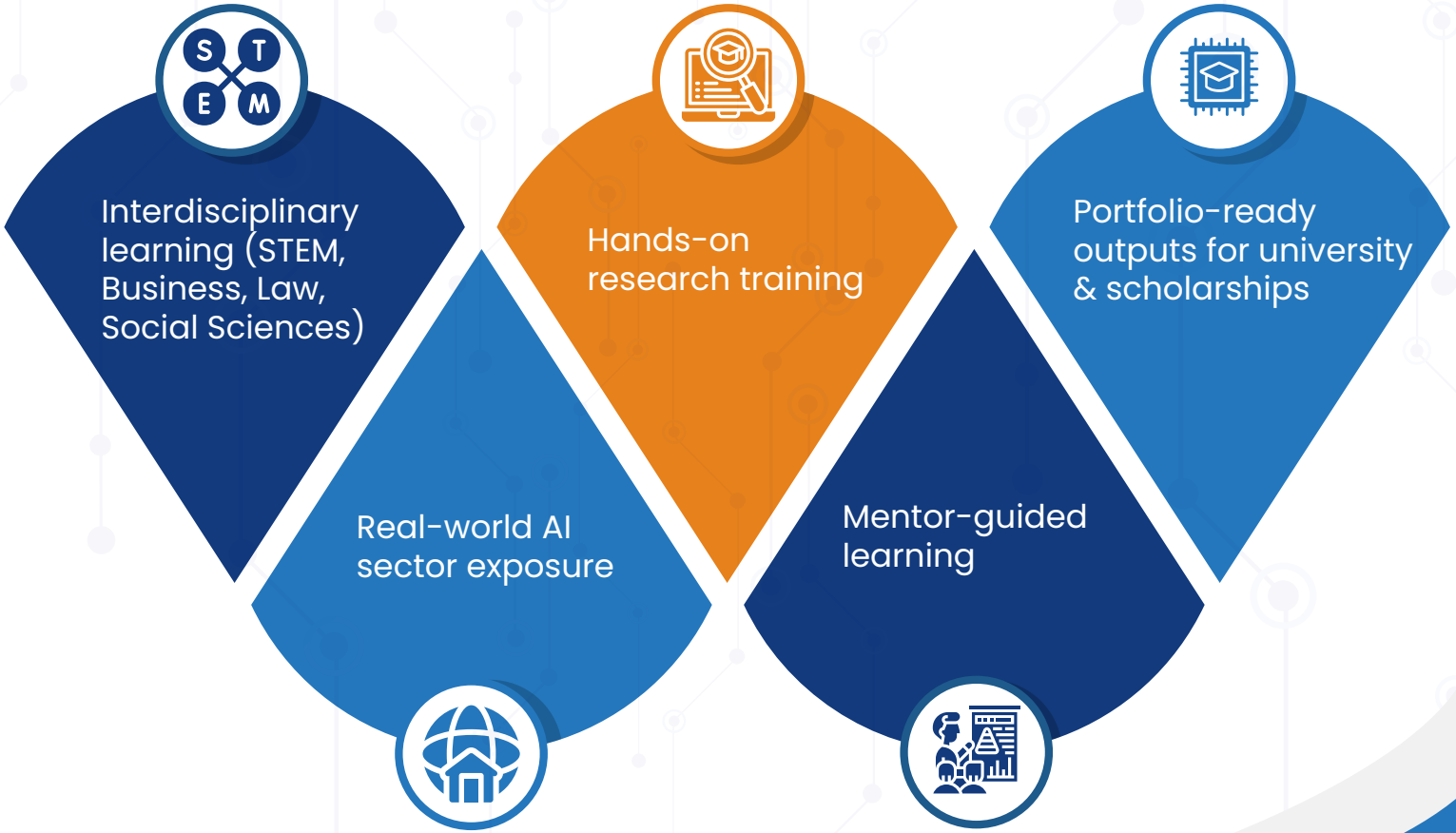

## AI RESEARCH APPRENTICESHIP

*Learn to Research. Research to Lead.*

# Program Overview

The AI Research Apprenticeship Program is a two-week immersive experience where students learn to conduct AI-driven sectoral research, develop strategies, and produce actionable outputs. Hosted by AI Hive, an NCAI spinoff engaged in national and international research, policy, and innovation programs, this course emphasizes strategic thinking, sectoral insight, and global relevance.

# Why This Program Matters ?



# Week 1

## FOUNDATIONS OF AI, RESEARCH METHODOLOGY & TOOLS

### INTRO TO AI — DAY-1

**Learning Objectives**
Understand AI applications globally and locally; explore interdisciplinary relevance

**Activities & Outputs**
Icebreaker: “AI in Everyday Life”; Sectoral mapping activity

### NATIONAL AI SECTORS — DAY-2

**Learning Objectives**
Learn 12 AI priority sectors and their societal/economic relevance

**Activities & Outputs**
Sectoral case study review; Identify global vs local trends

### RESEARCH BASICS — DAY-3

**Learning Objectives**
Frame research questions, identify gaps, structure research plans

**Activities & Outputs**
Brainstorm research questions; Hypothesis formulation; Plan mini research topics

## RESEARCH TOOLS

DAY-4

**Learning Objectives**

Learn frameworks, literature survey, data collection, and documentation methods

**Activities & Outputs**

Introduce research outline, synopsis creation, and methodology planning; Guided exercises in literature review; Exposure to academic databases & journals

## SYNOPSIS CREATION

DAY-5

**Learning Objectives**

Draft initial research synopsis including objectives, rationale, and scope

**Activities & Outputs**

Students receive sector assignments; Prepare mini research synopsis for Week 2 capstone; Mentor feedback

# Key Takeaways

- Develop structured research synopses
- Understand how to plan research methodology
- Gain exposure to sectoral frameworks and AI-driven problem identification
- Prepare for capstone research in Week 2

# Week 2

## SECTORAL AI RESEARCH CAPSTONE

### CASE STUDIES — DAY-6

**Learning Objectives**
Compare global AI applications with local sectoral needs

**Activities & Outputs**
Conduct structured literature review; Analyze 2–3 global case studies; Document sectoral insights

### GAP ANALYSIS — DAY-7

**Learning Objectives**
Identify sectoral gaps, needs, and research opportunities

**Activities & Outputs**
SWOT-style analysis; Identify challenges and opportunities in Pakistan; Draft preliminary insights

### RECOMMENDATIONS — DAY-8

**Learning Objectives**
Formulate actionable AI-driven solutions

**Activities & Outputs**
Draft recommendations: social, economic, technical; Refine strategies with mentor guidance

## FINAL REPORT

DAY-9

**Learning Objectives**

Document research findings, methodology, and recommendations

**Activities & Outputs**

Prepare final sectoral report; Summarize literature review, methodology, gap analysis, and proposed solutions

## PRESENTATION

DAY-10

**Learning Objectives**

Present research outcomes and receive expert feedback

**Activities & Outputs**

5-slide presentation: Title & Sector, Research Question & Rationale, Methodology & Tools, Insights & Recommendations, Reflection & Impact; Mentor evaluation; Peer feedback

# Key Takeaways

- Conduct rigorous, sector-specific research
- Compare local and global AI applications
- Produce policy and strategy recommendations
- Develop confidence in presenting research to experts

# AI Priority Sectors





































**Note:** Each student is assigned one sector, enabling focused, actionable research and recommendations.

# Skills You Will Develop

- Research Methodology
- Literature Review
- Sectoral Analysis
- Gap Identification
- Strategy & Policy writing
- Critical Thinking
- Presentation Skills

# How This Helps You ?

- Stronger university & scholarship applications
- Globally aligned research experience
- Confidence in presenting insights
- Professional portfolio material
- Understanding of real AI sector challenges



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# AI RESEARCH APPRENTICESHIP PROGRAM

**Join the Cohort**

***Become a research-driven innovator***

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