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Ref: AKTU/CTPC/2025/1254

03 July, 2025

To,
The Directors/Principals
Colleges affiliated/associated to Dr. APJ Abdul Kalam Technical University
Lucknow, Uttar Pradesh

Subject: Launch of Two New MakeX Internship Programs in Association with ERA Foundation for III & V Semester Students

Dear Sir/Madam,

AKTU is pleased to announce the launch of two cutting-edge internship programs under the "MakeX" initiative, in an exclusive association with the ERA Foundation. These **140hrs.** of engagement programs are meticulously designed to provide our students with hands-on, industry-relevant experience, further enhancing their skills and employability in line with the evolving demands of the modern workforce.

The two distinct internship programs being offered are:

- **Rapid Prototyping & Design Thinking (Industry Problem-Solving)**
- **Autonomous Robot Internship**

These internship programs are specifically tailored for III and V semester students across all affiliated colleges. The aim is to bridge the gap between academic learning and practical industry application, fostering innovation and problem-solving capabilities among our students. Hence you are requested to circulate this among our eligible batch students to participate through the given QR Scanner Code in the attached brochure by 20 July 2025.

Each program offers a unique opportunity for students to engage deeply with advanced technologies and methodologies.

IMPORTANT:- THIS IS A FREE INTERNSHIP OPPORTUNITY FOR FIRST 120 STUDENTS ON FIRST COME FIRST SERVE BASIS.

THE INTERNSHIP WILL BE IN PHYSICAL MODE AT GOOGLE LAB , CAS BUILDING, AKTU CAMPUS FROM 09:00 AM to 5:00 PM DAILY

Best Wishes,


(Neelam Srivastava)

Copy to:

- (1) Registrar, AKTU, Lucknow
- (2) Finance Officer, AKTU, Lucknow
- (3) Staff Officer to Hon' Vice Chancellor for kind information

(Neelam Srivastava)



Central Training & Placement Cell, AKTU in
association with ERA Foundation presents

KALAM PRAGATI

Empowering Engineers with Skills for Success

At Centre for Advanced Studies, AKTU, Lucknow

MakeX Internship

Internship Series for Engineering Students

Dr. A.P.J. Abdul Kalam Technical University

MakeX Internship

The MakeX Internship Series is an intensive, hands-on internship program designed exclusively for engineering students to bridge the gap between classroom learning and real-world innovation.

MakeX empowers students to master cutting-edge prototyping tools, emerging technologies, and apply structured design thinking frameworks to develop impactful, working prototypes.

This series offers two specialized tracks where students explore the worlds of Autonomous Robotics and Rapid Prototyping with Design Thinking, preparing them for careers in technology innovation, product design, and applied engineering.



Program Structure

- Total Duration: 1 month (140 hours)
- Facilitator-Led Sessions: 70 Hours (Mornings)
- Hands-on Project Work: 70 Hours (Afternoons)
- Time: 10:00 AM to 5:00 PM

MakeX Internship Tracks:

MakeX Internship 01

Autonomous Robotics Internship

- Explore Arduino, Raspberry Pi, and Computer Vision.
- Build an autonomous robot capable of object detection and lane following.
- Gain skills in programming, electronics, and AI integration.

MakeX Internship 02

Rapid Prototyping & Design Thinking Internship

- Master tools like CAD, 3D Printing, Laser Cutting, PCB Design, and App Design.
- Apply Design Thinking to solve community problem statements and build prototypes.
- Experience the full product development cycle from empathy to prototype to pitch.

Who should join MakeX?

- Engineering students from all disciplines (Mechanical, Electronics, Electrical, Computer Science, Mechatronics, etc.)
- Students keen on robotics, product design, rapid prototyping, IoT, embedded systems, and user-centered engineering.
- Aspiring innovators aiming to build portfolio-worthy prototypes and gain industry-recognized internship credentials.



Scan the QR code to fill the registration form.

RAPID PROTOTYPING & DESIGN THINKING INTERNSHIP

Week 1: Rapid Prototyping Tools - CAD, 3D Printing, Laser Cutting

- Introduction to CAD tools: Fusion 360/TinkerCAD for 3D modeling.
- Learn basics of 3D Printing: Slicing, filament types, machine operations.
- Introduction to Laser Cutting: File preparation, safety, material handling.
- Hands-on practice: Create sample parts, objects, and mini prototypes using the above tools.

Week 2: Advanced Tools - PCB Design, App Prototyping, Integration

- Introduction to PCB Design: Software tools like EasyEDA, KiCAD, PCB printing basics.
- App Design in Figma: UI/UX basics, wireframing, and click-through prototyping.
- Integration workshop: Combine PCB, 3D printed components, and app mockups.
- Demo day: Create mini working prototypes using the learned tools.

Week 3: Problem Solving using Design Thinking (Empathize, Define, Analyze)

- Introduction to Design Thinking Process with real-world case studies.
- Empathy & Stakeholder Mapping Workshop: Interview community members, build empathy maps, stakeholder maps.
- User Journey & Fishbone Analysis Workshop: Map user pain points, identify root causes.
- Define Problem Statement: Articulate clear, validated problem statements.

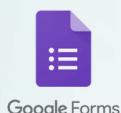
Week 4: Ideation, Prototype Building & User Testing

- Ideation Techniques (SCAMPER, Brainstorming): Generate ideas for the validated problem.
- Build Low & Mid-Fidelity Prototypes using learned tools.
- User Testing & Iteration: Present prototypes to users, gather feedback, refine.
- Final Showcase: Pitch the prototypes to stakeholders with storytelling.

Tools & Technologies Covered



AUTODESK
TINKERCAD



ChatGPT



Week 1: Week 1: Foundations of Robotics & Hardware Integration

- Understand the basics of robotics systems, sensors, and actuators.
- Learn Arduino and Raspberry Pi setup, programming, and interfacing.
- Explore and test key sensors like IR, Ultrasonic, and Camera modules.
- Build a basic obstacle detection prototype using Arduino and Raspberry Pi.

Week 2: Motion Control & Robot Design

- Assemble the robot chassis and configure motor drivers.
- Implement basic line following using IR sensors and Arduino.
- Learn and apply PID control for smooth and accurate line following.
- Demonstrate a functional line-following robot on a test track.

Week 3: Object Detection & AI with Raspberry Pi

- Integrate OpenCV with Raspberry Pi for camera-based vision tasks.
- Develop object detection models using Haar Cascades or YOLO.
- Program the robot to detect objects and make navigation decisions.
- Achieve AI-assisted robot movement with object detection and avoidance.

Week 4: Full Integration & Final Challenge

- Combine lane following and object detection for autonomous navigation.
- Optimize sensor integration, system tuning, and debugging.
- Test the robot on a complex course simulating real-world scenarios.
- Present the final robot prototype and pitch the project outcome.

Tools & Technologies Covered





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the registration form.

MakeX Internship

Make. Innovate. Impact.

Empowering Future Engineers for success!!

Contact Us:

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For More Information visit:

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