Angstromers Engineering Solutions Pvt. Ltd.
Cambrian Incubator, Jai Bhuvaneshwari Layout Rd.,
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RISC-V and Applications Development

Phase 1 - Capacity building (March to August)

- Task: The core team comprising of 8 faculty mentors and 60 students to be trained to get first hand experience in SiP and RISCV
- Activity:
  - Training of core team to work with level 1 training (SiP and RISCV)
  - Establishment of Smart Radar Research Lab & RISCV Engines Lab
- Start date: 15th March 2025, 10 days, 1 day per week or 6 hours per week (every Saturday)

Dates	Activity	Outcomes
15th March 2025 to 24th May 2025	Training on two tracks SiP and RISCV	Familiarization to concepts and hands on tools Developing skills to work with projects and use of EDA tools Preparation of project report and technical paper for publications
31st May 2025 to 12th Augus t 2025	Self-learning and project work	Group based activity and project work Innovations throug h hackathons Outreach programs 60 technical papers and prototypes
30th Augus t 2025	Innovation day celebrations	Demonstration of innovations and achievements

Introduction:

RISC-V is an open-source instruction set architecture (ISA) that is gaining traction in academia and industry due to its flexibility and scalability. This course provides a comprehensive understanding of RISC-V architecture and its applications, with hands-on experience in programming, optimization, and complex application development. Participants will gain the necessary skills to work on advanced-level programming, develop novel applications, and contribute to the growing RISC-V ecosystem.

Total duration: 100 Hours (60 hours contact sessions and 40 hours self-learning)

No. of days (contact hours): 10 days with 6 hours per day

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Course Objectives:

- Provide a deep understanding of RISC-V architecture and its components
- Train participants in assembly-level and high-level programming for RISC-V
- Enable hands-on experience with tools such as SPIKE and PULP Simulator
- Develop and optimize real-world applications using RISC-V
- Foster innovation through project-based learning, hackathons, and research
- Prepare engineers for higher-level certifications and industrial applications

Course Deliverables:

- 60 hours of contact sessions
- 40 hours of Self Learning
- Project work execution and mentorship
- Hackathon participation and evaluation.
- Certification upon successful completion.

Course Outcomes: By the end of this course, participants will:

- Develop 10 projects/prototypes and technical papers.
- Create 5 novel and patentable applications.
- Generate 10 innovative solutions as outcomes of the hackathon.
- Be proficient in advanced programming and application development with RISC-V.

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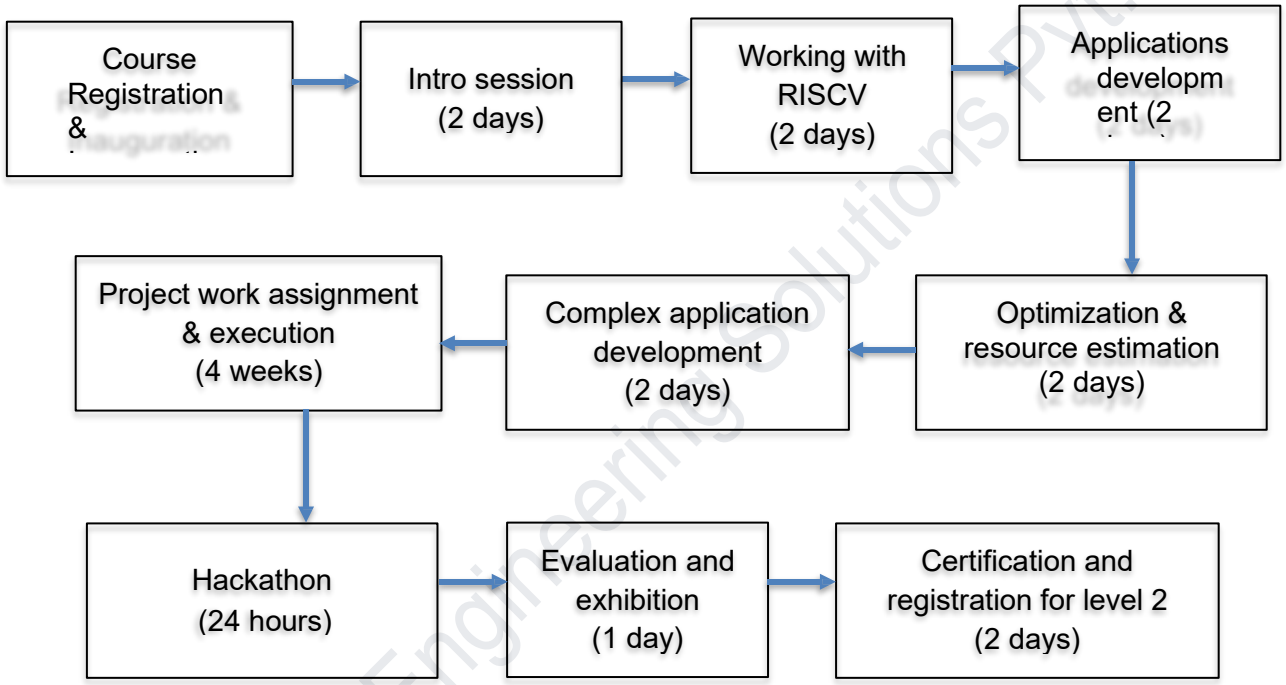
Process flow:

In this program, students will gain hands-on expertise with the RISC-V platform, working with both software and hardware modules. They will develop applications ranging from simple to complex and demonstrate their functionality. The program provides opportunities for students to participate in a hackathon and engage in industry-relevant projects. Additionally, students will work on innovative projects that may lead to technical papers, prototypes, patents, and functional models.



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Program Schedule

Date	Topics	Trainers
04/04/2025	**1. RISC-V Introduction** **2. Introduction to GitHub - Repository under Angstromers (Org.)** **3. Installations:** Ubuntu SPIKE **4. Simulate 4 programs:** -Fibonacci -Palindrome -binary search -Bubble sort	Dr. Cyril Prasanna Raj P. Dr.Girish H. Kavinesh J. Kamalashree S
12/04/2025	**RISC-V single cycle architecture** -Assembly level programming: Operations(+,-,*./)	Dr.Girish H. Kavinesh J.
18/04/2025	RISC-V ISA	
26/04/2025	Multi-Cycle architecture and Pipeline	
02/05/2025	Scalar and vector multiplication working with PULP Simulator	
10/05/2025	FSMs and recursive methods	Dr. Cyril Prasanna Raj P. Kavinesh J.
16/05/2025	DFT FFT	
24/05/2025	Cholesky decomposition Matrix multiplication	
30/05/2025	2D convolution using PULP	
07/06/2025	Capstone Project	

----------Thank you----------