

Scientific Research Paper

The students will be required to write a research paper (**7,000 words or at least 20 single-column, single-spaced pages**) that encompasses the software and system architecture domain. The students can choose the topic from the list given below or select the topic by themselves. In case, the topic is selected by the students, the students are required to discuss the topic with the instructor and pursue it further only after the instructor's approval. The students will work in groups and a group may comprise a of maximum two (02) students.

Tentative list of topics

- Cloud architecture patterns: Analysis, comparison, and evaluation.
- Architectures for Enterprise Asset Management
- DevOps culture and its impact on software and systems architecture.
- Big data architecture: Design and deployment of scalable data processing pipelines.
- Fault-tolerant systems architecture: Strategies, techniques, and evaluation.
- Blockchain architecture: Design and deployment of decentralized applications and smart contracts.
- Cybersecurity architecture: Building secure and resilient systems.
- Multi-cloud architecture: Design, deployment, and management of applications on multiple cloud platforms.
- Real-time systems architecture: Design and evaluation of real-time processing systems.
- Federated architecture: Principles, applications, and evaluation.
- Digital transformation architecture: Strategies, techniques, and evaluation.
- Infrastructure as code: Design and deployment of software-defined infrastructure.
- Software and systems architecture for edge computing

Date	Deliverable(s)
Friday, September 13, 2024	Tentative title of the research paper and list of team members
Friday, September 27, 2024	Problem description, literature review
Wednesday, November 13, 2024	Proposed research methodology/solution/model/architecture
Friday, November 29, 2024	Experimental results/analysis/classification
Monday December 11, 2024	Final paper draft