



Mehran University of Engineering and Technology, Jamshoro
Department of Software Engineering

ORIGINAL SUBMITTED SYLLABUS

Title of Subject	:	Advanced Software System Architecture
Code	:	SE613
Discipline	:	Software Engineering (2 nd Semester)
Effective	:	19 ME SE and onwards
Pre-requisite	:	None
Assessment	:	10% Sessional 30% Mid Semester 60% Final Semester Examination
Credit Hours	:	3+0
Minimum Contact Hours:		Marks : 100 + 00

Specific Objectives of course:

- Course develops an in-depth understanding of software system organization. It considers qualitative and quantitative architecture assessment and mapping of system models with software architecture.

Course outline:

- Quality attributes in the context of architecting.
- Qualitative and quantitative assessment of architectures. Architectural modeling through Architecture Description Languages.
- System modeling its relation to software architecting. Architecting for evolution and variability.
- Selecting and applying design patterns in architectural process.
- Partitioned and layered architectures. System-of-Systems and Ultra-Large Scale Systems. Software Product Lines and Configurable Software. Self-Adaptive Software.
- Architectural Description Languages. Feature Modeling. Architecture and Model-Based Testing.
- Architectures of modern software systems, such as SOA, Webservices, Microservices, and cloud-based systems
- Current research topics in software system architecture.

BOOKS RECOMMENDED

1. Designing Software Architectures: A Practical Approach (SEI Series in Software Engineering), Humberto Cervantes, Rick Kazman, [Latest Edition], Addison-Wesley Professional. [SEP]
2. Software Product Lines: Practices and Patterns, P. Clements and L. Northrup, Addison-Wesley, 2002. [SEP]
3. Software Architecture : Foundations, Theory, and Practice, R. Taylor, N. Medvidović and E.M. Dashofy, John Wiley, 2010 [SEP]

Approval:

Board of Studies:	Res.No.02	Dated: 25-09-2018
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Academic Council:	Res.No.94.4	Dated:27-03-2019