GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT

Department of Computer Science and Engineering

Academic Year: **2016-17** Semester**: EVEN**

COURSE PLAN

Semester: **VIII** Subject Code& Name: **10IS81 - Software Architecture**

Name of Subject Teacher: **KARTHIK M**

Name of Subject Expert (Reviewer): **N S SARADHA DEVI**

For the Period: From: 13-02-2017 to 02-06-2017

Details of Book to be referred:

Text Books	B1. Len Bass, Paul Clements, Rick Kazman: Software Architecture in Practice, 2nd Edition, Pearson Education, 2003 B2. Frank Buschmann, Regine Meunier, Hans Rohnert, Peter Sommerlad, Michael Stal: Pattern-Oriented Software Architecture, A System Of Patterns - Volume 1, John Wiley and Sons, 2007 B3. Mary Shaw and David Garlan: Software Architecture – Perspectives on an Emerging Discipline, PHI, 2007.
Reference Books	B1. E.Gamma, R.Helm, R.Johnson, J.Vlissides: Design Patterns Elements of Reusable Object-Oriented Software, Pearson Education,1995

Lecture NO	Topic Planned	Practical Applications & Brief objectives	Book referred with Pg No.	Planned Date	Executed Date	Deviation Reasons thereof	How Made Good / Reciprocate arrangement	Remarks by HOD
1.	**UNIT-1 – Introduction: Architecture Business Cycle:**		**B1**: 1	13/2/17				
2.	Where do Architectures Come From ?	**Objective:** Study about Architecture Business Cycle analyzing the	6-11	14/2/17				
3.	Software Processes and Architecture Business Cycle		12-14	15/2/17				

4.	What makes a Good Architecture ?	Technical, Business and Social Factors **Application:** This Unit introduces the things affecting Architecture Design, important factors that are a must know for a Software Architect	14-16	16/2/17				
5.	What Software Architecture is and What it is NOT/Other Points of View/Patterns, Reference Models/Architectures		19-23	16/2/17				
6.	Importance of Software Architecture/Architectural Structures and Views		26-35	20/2/17	20/2/17			
7.	Revision			21/2/17	21/2/17			
8.	**UNIT 2- Introduction: Architectural Styles**	**Objective:** Understand the different Architectural Styles and the situations they are used in **Application:** Domains and areas where the styles are best suited in real-life software system	**B3:**21	22/2/17				
9.	Pipes and Filters		21-22	23/2/17				
10.	Event Based, ImplicitInvocation		23-24	23/2/17				
11.	Layered Systems, Repositories, Intrepreters		25-27	27/2/17				
12.	Process Control		27-30	28/2/17				
13.	Other Familiar/Heterogeneous Architectures		31-32	1/3/17				
14.	Case Studies: Keyword In Context - Problem		33	2/3/17				

15.	Case Studies: Keyword In Context - Solution	are known	34-38	2/3/17				
16.	Instrumentation Software/Mobile Robotics – Problem and Solution		39	6/3/17				
17.	Cruise Control/ 3 Vignettes Study		51-60	7/3/17				
18.	Revision			8/3/17				
19.	**UNIT 3 – Introduction: Quality**	**Objective:** Understand Quality criteria impact on Architecture and Functionality and the various attributes used in practice **Application:** Real-life software systems employ the many attributes like security,usability, performance all very important for the end-user	**B1:** 71	13/3/17				
20.	Functionality and Architecture		72	14/3/17				
21.	Architecture and Quality Attributes		73	15/3/17				
22.	System Quality Attributes		74	16/3/17				
23.	Quality Attribute Scenarios in Practice .		78	16/3/17				
24.	Other System Quality Attributes/Business Qualities		94-95	20/3/17				
25.	Architecture Qualities		96-97	21/3/17				
26.	Achieveing Quality:Tactics		100-110	22/3/17				
27.	Relationship of Tactics to Architectural Patterns/Architectural Patterns and Styles		122-126	23/3/17				

28.	Revision			23/3/17				
29.	**UNIT 4- Introduction: -Architectural Patterns** Traditional view of testing levels	**Objective:** Understand various Architectural Patterns **Application:** Real-life systems like Unix and others directly employ the documented Architectural patterns	**B2:** 25	27/3/17				
30.	From Mud to Structure		29-30	28/3/17				
31.	Layers		31-51	30/3/17				
32.	Pipes and Filters		53-66	30/3/17				
33.	Pipes and Filters - Known Uses		53-66	3/4/17				
34.	Blackboard Introduction		71-86	4/4/17				
35.	Blackboard - Known uses			5/4/17				
36.	Revision			10/4/17				
37.	**UNIT 5- Introduction: – Distributed Systems**	**Objective:** Study about Distributed Systems, their Capabilities and Implementation **Application:** Real-life Software Systems, many commercial ones modeled based on	**B2:** 97	11/4/17				
38.	Broker Overview		99	12/4/17				
39.	Broker Benefit Analysis		99-122	13/4/17				
40.	Interactive Systems/Model view Controller Overview		123-124	13/4/17				
41.	Model View Controller		125	20/4/17				
42.	MVC Division and Application		125-144	24/4/17				

43.	Presentation-Abstraction-Control	the MVC Concept outlined in the Chapter	145-168	25/4/17				
44.	Revision			26/4/17				
45.	**UNIT6- Introduction: Adaptable Systems**	**Objective:** This unit deals with study of Adaptable Systems **Application:** Real-life Software Systems employ the concepts like Microkernel explained in this module	**B2:** 169	27/4/17				
46.	Microkernel		171-186	27/4/17				
47.	Microkernel – Example/Known Uses		187-192	2/5/17				
48.	Reflection		193-212	3/5/17				
49.	Reflection – Example/Known Uses		213-217	4/5/17				
50.	Reflection - Benefits			5/5/17				
51.	Revision			5/5/17				
52.	**UNIT7- Introduction – Some Design Patterns**	**Objective:** Understand Design Patterns and their relevance to commercial software systems **Application:** Domain knowledge for Object Oriented	**B2:** 221-222	8/5/17				
53.	Structural Decomposition – Whole Part		223-224	9/5/17				
54.	Organization Of Work		243-244	10/5/17				
55.	Master-Slave/Access Control			11/5/17				

56.	Master-Slave/Access Control	based systems, Master/Slave type control configurations of software systems employ the outlined methodologies	245	5/5/17				
57.	Proxy		263-276	8/5/17				
58.	Revision			9/5/17				
59.	**UNIT 8- Introduction: Designing and Documenting Software Architecture**	**Objective:** Chapter Outlines the Design and Documentation methods for a Software Architecture **Application:** Concepts gained here are directly usable by Software Architect when designing the Architecture and equally importantly the Documentation tools for the same	**B1:** 153	10/5/17				
60.	Architecture in the life cycle		153-154	11/5/17				
61.	Designing the Architecture		155	18/5/17				
62.	Forming the Team Structure/Creating a Skeletal System		167-171	22/5/17				
63.	Uses of Architectural Documentation/Views and Choosing Relevant views		202-206	23/5/17				
64.	Documenting a View		207-215	24/5/17				
65.	Documenting Across Views		207-215	25/5/17				
66.	Revision			29/5/17				
67.	Revision			30/5/17				

68.	Revision	Solving VTU Question Papers		1/6/17				
69.	Revision			1/6/17				

Prepared By:Karthik M (Faculty) Date & Sign_____

Reviewed by:_____ (Sub. expert) Date & Sign_____

Approved by: _____ (HOD) Date & Sign _____

Approved by: _____ (Principal/ Acad. Co) Date & Sign _____