Birla Institute of Technology & Science, Pilani
Hyderabad Campus

INSTRUCTION DIVISION
FIRST SEMESTER 2016-2017
Course Handout Part II

Date: 01-08-2016

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : **BITS F466**
Course Title : **Service Oriented Computing**
Instructor-in-Charge : **KCS Murti**
Instructor : **KCS Murti**

Scope and Objective of the Course:
Objective
Service-oriented computing is an emerging cross-disciplinary paradigm for distributed computing, which is changing the way software applications are designed, delivered and consumed. At the heart of service-oriented computing are services that provide autonomous, platform-independent, computational elements that can be described, published, discovered, orchestrated and programmed using standard protocols to build networks of collaborating applications distributed within and across organizational boundaries.
The course aims to give the student an understanding of Service Oriented Computing , implement and deploy applications using this paradigm. They will also learn to define and design applications as combinations of services.

Scope
The course covers Introduction to Web Services, Overview of Service Oriented Architecture, SOAP enabled web services, Describing Web Services using WSDL, Publishing and Finding web services using UDDI Registry, UDDI SOAP APIs ,Inquiry APIs, Publisher APIs. Work flow based services, Usage of Business Process Execution Language for describing workflow of web services, Rest web service its protocol and usage, Design patterns in SoA and security aspects.

Prerequisites
The course presupposes a basic understanding of XML schema and XML namespaces. Practical exercises entail a considerable amount of Java or any OO programming language. The design discussion assumes basic knowledge of UML.

Text Books

T1 SOA, principles of service design.Thomas Erl, PH

Reference Books:

R1. SOA, design patterns,Thomas Erl,PH
R2. SOA A_Field_Guide_to_Integrating_XML_and_Web_Services, Thomas erl,PH
R3. Next generation SOA, Thomas Erl,PH

Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter in the Text Book
L1	Course overview	Course overview	
L2-4	Introduce service oriented	Design fundamentals, Introduction to SOC,goals	Ch-3

	computing	and benefits	
L5-7	Introduce service orientation and its benefits	Introduction to Service-Orientation, benefits, challenges, SOC in enterprise.	Ch-4
L8-11	Understanding design principles for SOC	Using design principles, design patterns	Ch-5
L12-17	Service contracts	Service Contracts. Standardization and service design	Ch-6
L18-21	Service coupling	Service Contract Coupling Types, Service consumer Coupling Types,Service loose coupling	Ch-7
L22-24	Service abstraction	Notion of abstraction, Functional Abstraction, service abstraction	Ch-8
L25-27	Service re-usability	Service Reuse in SOA, Standardized Service Reuse and Logic Centralization	Ch-9
L28-30	Service autonomy	Service autonomy, types of service autonomy, isolated services	Ch-10
L31-32	State management	State management, Stateless and Stateful,	Ch-11
L33-34	Service discovery	Types of Discovery and Discoverability Meta Information	Ch-12
L35-36	Service composition	Composition Concepts and Terminology, Complex Service Composition	Ch-13
L37	Service orientation	OOAD vs SoA paradigm, Designing Service-Oriented Classes	Ch-14
L38-42	Design patterns	Popular design patterns in SoA.	Topics from R1

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Test-1	1 hr	15%	10/9, 10.00--11 AM	Closed Book
Test-2	1 hr	15%	22/10, 10.00--11 AM	Closed Book
Labs/take home(*)	NA	40%		Open Book
Comprehensive	3 hrs	20% 10%	09/12 AN	Closed Book Open Book

(*) Labs will include developing services either by java or windows, .NET and Azure. The assignments include study and presentation of latest topics in this area.

Chamber Consultation Hours:
Any time. Check my free hours from my public calendar chandra.kavuri@gmail.coom

Notices:
All notices pertaining to this course will be posted on CMS.

Make-up Policy:
Make-up will be granted strictly based on prior permissions and on justifiable grounds only. There is no make up for the Quizes/Lab Exercises component.

INSTRUCTOR-IN-CHARGE
BITS C466