SRI VENKATESWARA COLLEGE OF ENGINEERING

COURSE DELIVERY PLAN - THEORY

Department of Information Technology	LP: IT16402 Rev. No: 00 Date: 15.12.2017
B.E/B.Tech/M.E/M.Tech : B.Tech **Regulation: 2016** **Sub. Code / Sub. Name : IT16402 - SOFTWARE ENGINEERING METHODOLOGIES** **Unit : I**	

Unit Syllabus:

SOFTWARE PROCESS AND SOFTWARE REQUIREMENT ANALYSIS

Generic process model, Process Assessment and Improvement, Prescriptive Process models, Specialized Process models, Personal and Team Process models. Software Requirements: Functional and Non-Functional, User requirements, System requirements, Software Requirements Document – Requirement Engineering Process: Feasibility Studies, Requirements elicitation and analysis, requirements validation, requirements management-Classical analysis: Structured system Analysis, Petri Nets- Data Dictionary.

Objective:

To know about the basic concepts of software engineering, process life cycle models, Requirements engineering and Analysis activity.

Session No *	Topics to be covered	Ref	Teaching Aids
1&2	Introduction to software engineering -**Attributes of good software and key challenges of software engineering.**	1(1)	LCD/BB
3	Generic process model, Process Assessment and Improvement ,Prescriptive Process models	1(2)	LCD/BB
4&5	Specialized Process models , Personal and Team software Process	1(3)	LCD/BB
6&7	Software Requirements: Functional and Non-Functional, User requirements, System requirements	1(7)	LCD/BB
8	Software Requirements Document	1(7)	LCD/BB
9&10	Requirement Engineering Process: Feasibility Studies, Requirements elicitation and analysis, requirements validation, requirements management	1(7)	LCD/BB
11&12	Classical analysis: Structured system Analysis- Petri Nets – Data Dictionary	2(5)	LCD/BB
Content beyond syllabus covered (if any): Attributes of good software and key challenges of software engineering.			

* Session duration: 50 minutes

Department of Information Technology	LP: IT16402 Rev. No: 00 Date: 15.12.2017
B.E/B.Tech : Information Technology Regulation: 2016 **Sub. Code / Sub. Name : IT16402 / Software Engineering Methodologies** **Unit : II**	

Unit Syllabus:

SOFTWARE DESIGN

System Modeling -Context models-Interaction models-Structural models-Behavioral models-Model driven engineering, Architectural Design - Architectural design decisions-Architectural views-Architectural patterns-Application architecture- User Interface Design: Interface analysis, Interface Design. Software Testing.

Objective:

To learn about different types of design models and software testing.

Session No *	Topics to be covered	Ref	Teaching Aids
1	System Modeling -Context models-Interaction models-Structural models-Behavioral models	1(8)	LCD/BB
2	Model driven engineering	1(8)	LCD/BB
3	Architectural Design - Architectural design decisions	1(8)	LCD/BB
4	Architectural views	1(8)	LCD/BB
5	Architectural patterns	1(10)	LCD/BB
6	Application architecture	1(10)	LCD/BB
7	User Interface Design	1(12)	LCD/BB
8	Interface analysis, Interface Design	1(12)	LCD/BB
9	Software Testing	1(14)	LCD/BB
Content beyond syllabus covered (if any): Nil			

* Session duration: 50 mins

Department of Information Technology	LP: IT16402 Rev. No: 00 Date: 15.12.2017
B.E/B.Tech : Information Technology **Regulation: 2016** **Sub. Code / Sub. Name : IT16402 / Software Engineering Methodologies** **Unit : III**	

Unit Syllabus:

AGILE SOFTWARE DEVELOPMENT

Agile methods - Agile development techniques - Agile project management - Scaling agile methods.

Objective: In this unit, Agile methods, Agile development techniques and scaling of projects using agile methods will be discussed in detail.

Session No *	Topics to be covered	Ref	Teaching Aids
1	Agile methods **–** the principles of Agile methods.	**2(3.1)**	**LCD/BB**
2 & 3	Agile development techniques – Plan driven and agile development	**2(3.2)**	**LCD/BB**
4 & 5	Agile project management **-** The Scrum process	**2(3.4)**	**LCD/BB**
6 & 7	Scaling agile methods	**2(3.5)**	**LCD/BB**
Content beyond syllabus covered (if any):			

* Session duration: 50 minutes

Department of Information Technology	LP: IT16402 Rev. No: 00 Date: 15.12.2017
B.E/B.Tech : Information Technology **Regulation: 2016** **Sub. Code / Sub. Name : IT16402 / Software Engineering Methodologies** **Unit : IV**	

Unit Syllabus:

AGILE PRODUCT MANAGEMENT WITH SCRUM

Understanding product owner role - Envisioning the product - Working with product backlog - Planning the release.

Objective: In this unit, agile product management using Scrum with the help of owner role, envisioning, product backlog and product release will be discussed in detail.

Session No *	Topics to be covered	Ref	Teaching Aids
1	**Understanding product owner role** - Desirable Characteristics of a Product Owner, Working with the Team, Collaborating with the Scrum Master.	**3(Ch: 1)**	**LCD/BB**
2	**Understanding product owner role** - Working with Customers, Users, and Other Stakeholders, Scaling the Product Owner Role.	**3(Ch: 1)**	**LCD/BB**
3	**Envisioning the product** - The Product Vision, Desirable Qualities of the Vision, The Minimal Marketable Product, Simplicity, Customer Needs and Product Attributes.	**3(Ch: 2)**	**LCD/BB**
4	**Envisioning the product** - The Birth of the Vision, Techniques for Creating the Vision, Visioning and the Product Road Map, Minimal Products and Product Variants.	**3(Ch: 2)**	**LCD/BB**
5	**Working with product backlog** - The DEEP Qualities of the Product Backlog, Grooming the Product Backlog, Discovering and Describing Items, Prioritizing the Product Backlog.	**3(Ch: 3)**	**LCD/BB**
6	**Working with product backlog** - Getting Ready for Sprint Planning, Sizing Items, Dealing with Nonfunctional Requirements, Scaling the Product Backlog.	**3(Ch: 3)**	**LCD/BB**
7 & 8	**Planning the release** - Time, Cost, and Functionality, Quality Is Frozen, Early and Frequent Releases, Quarterly Cycles, Velocity, The Release Burn down, The Release Plan, Release Planning on Large Projects.	**3(Ch: 4)**	**LCD/BB**
Content beyond syllabus covered (if any):			

* Session duration: 50 minutes

Department of Information Technology	LP: IT16402 Rev. No: 00 Date: 15.12.2017
B.E/B.Tech : Information Technology **Regulation: 2016** **Sub. Code / Sub. Name : IT16402 / Software Engineering Methodologies** **Unit : V**	

Unit Syllabus:

ADVANCED SOFTWARE ENGINEERING

Software Reuse - Component based Software Engineering - Distributed Software Engineering - Service - oriented Software Engineering - Systems Engineering - Systems of Systems

Objective: In this unit, Advanced software engineering techniques like software reuse, component based, distributed, service oriented and system engineering methods will be discussed in detail.

Session No *	Topics to be covered	Ref	Teaching Aids
1	**Software Reuse -** The reuse landscape, Application frameworks.	**2(16.1 – 16.4)**	**LCD/BB**
2	**Software Reuse -** Software product lines, COTS product reuse.	**2(16.1 – 16.4)**	**LCD/BB**
3	**Component based Software Engineering -** Components and component models.	**2(17.1 – 17.3)**	**LCD/BB**
4	**Component based Software Engineering** - CBSE processes, Component composition.	**2(17.1 – 17.3)**	**LCD/BB**
5	**Distributed Software Engineering -** Distributed systems issues, Client–server computing.	**2(18.1 – 18.4)**	**LCD/BB**
6	**Distributed Software Engineering -** Architectural patterns for distributed systems, Software as a service.	**2(18.1 – 18.4)**	**LCD/BB**
7	**Service - oriented Software Engineering** - Services as reusable components, Service engineering, Software development with services.	**2(19.1 – 19.3)**	**LCD/BB**
8	Systems Engineering	**Internet**	**LCD/BB**
9	Systems of Systems	**Internet**	**LCD/BB**
Content beyond syllabus covered (if any):			

* Session duration: 50 minutes

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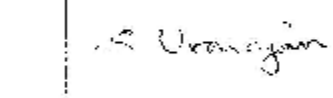
TEXT BOOKS:

1. Roger S. Pressman, "Software Engineering - A Practitioner's Approach", Seventh Edition, Mc Graw-Hill International Edition, 2010.
2. Ian Sommerville, "Software Engineering", 10th Edition, Pearson Education Asia, 2016.
3. Roman Pichler,"Agile Product Management with Scrum Creating Products that Customers Love",Pearson Education, 2013

REFERENCES:

4. Ken Schwaber ,"Agile Project Management with Scrum" , Microsoft Press,2014"
5. Tilak Mitra ," Practical Software Architecture: Moving from System Context to Deployment", IBM press,2016
6. Pankaj Jalote, "Software Engineering, A Precise Approach", Wiley India, 2010.

	Prepared by	Approved by
Signature		
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Date	15.12.2017	15.12.2017
Remarks* :		
Remarks* :		

* If the same lesson plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD