National Institute of Technology Meghalaya

An Institute of National Importance

CURRICULUM

Programme	**Bachelor of Technology in Computer Science and Engineering**	Year of Regulation	**2019-20**
Department	**Computer Science and Engineering**	Semester	**VI**

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	Continuous Evaluation	Lab Test/ Viva	Total
CS352	**Software Engineering Lab**	**0**	**1**	**2**	**2**	**70**	**30**	**100**

Course Objectives	Course Outcomes		
To introduce the Software Development life cycles Models		CO1	**Able to identify, formulate, and solve complex engineering problems**
To analyse the software requirements		CO2	**Able to recognize ethical and professional responsibilities in engineering situations**
To introduce various design methods for software Development		CO3	**Able to analyze, design, verify, validate, implement, apply, and maintain software systems**
To develop an ability and skill to test software systems		CO4	**Able to work in one or more significant application domain**

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**
2	CO2	**2**	**1**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**2**	**1**	**1**
3	CO3	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**
4	CO4	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**1**	**1**	**1**

SYLLABUS

No.	Content	Hours	COs
I	**Software Development life cycles Models, Agile Process Models Software**	**06**	**CO1 CO2 CO3 CO4**
II	**Static program verification tool (SLAM) for verifying critical program behaviour, Data Modelling Concepts, Object Oriented Analysis, Flow-Oriented Modelling,**	**06**	
III	**Formal verification of concurrent systems using SPIN model checker.**	**06**	
IV	**DFD and UML Development for the requirements**	**06**	
V	**Design and coding using software development languages**	**06**	
VI	**Taxonomy of Quality Attributes, Perspectives of Quality, Quality System, Software Quality Assurance, Manual and automated testing tools.**	**06**	
	To be done necessarily as mini-project group-wise in groups of at least two/three students.		
Total Hours		**36**	

Essential Readings

1. Roger S Pressman: “Software Engineering – A Practitioner’s Approach”, 7th Edition, McGraw-Hill, 2009.
2. Rajib Mall, “Fundamentals of Software Engineering”, 5th Edition, PHI, 2018.
3. Ian Sommerville: “Software Engineering”. 9th Edition, Pearson Education, 2011.

Supplementary Readings

1. SLAM Reference- http://research.microsoft.com/en-us/projects/slam/
2. SPIN Model Checker Reference: http://spinroot.com/spin/whatispin.html
3. Paul Ammann, and Jeff Offutt, “Introduction to Software Testing”, 1st Edition, Cambridge University Press, 2008.