

**BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI**  
**NEW COURSE STRUCTURE - To be effective from academic session 2018- 19**  
**Based on CBCS & OBE model**  
**Recommended scheme of study for M.Tech( Software Engineering )**

SEMESTER / Session of Study (Recommended)	Course Level	Category of Course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial;P- Practicals</i>			Total Credits C- Credits	
					L (Periods/ week )	T (Periods/ week)	P (Periods/ week)	C	
<b>THEORY</b>									
<b>FIRST / Monsoon</b>	Fifth	Programme Core (PC)	CS501	Mathematical Foundations of Computer Science	3	0	0	3	
			CS502	Advanced Data Structures	3	0	0	3	
			CS505	Object Oriented Modelling and Design	3	0	0	3	
		Programme Elective (PE)	**	PE 1	3	0	0	3	
	Open Elective (OE)	*	OE 1	3	0	0	3		
	<b>LABORATORIES</b>								
	Fifth	Programme Core (PC)	CS503	Advanced Data Structures Lab	0	0	4	2	
		Programme Elective (PE)	**	PE LAB 1	0	0	4	2	
	<b>TOTAL</b>								<b>19</b>
	<b>THEORY</b>								
<b>SECOND/ Spring</b>	Fifth	Programme Core (PC)	CS509	Advanced Computer Algorithm	3	0	0	3	
			CS513	Software Testing	3	0	0	3	
			CS514	Software Metrics	3	0	0	3	
		Programme Elective (PE)	**	PE 2	3	0	0	3	
	Open Elective (OE)	*	OE 2	3	0	0	3		
	<b>LABORATORIES</b>								
	Fifth	Programme Core (PC)	CS510	Advanced Computer Algorithm Lab	0	0	4	2	
		Programme Elective (PE)	**	PE LAB 2	0	0	4	2	
	<b>TOTAL</b>								<b>19</b>
	<b>TOTAL FOR FIFTH LEVEL</b>								<b>38</b>
<b>THEORY</b>									
<b>THIRD / Monsoon</b>	Fifth	Programme Core (PC)	CS600	Thesis Part I				8	
			CS603	Software Project Management	3	0	0	3	
	Programme Elective (PE)	**	PE 3	3	0	0	3		
	Fifth	Programme Elective (PE)	**	PE LAB 3	0	0	4	2	
		<b>TOTAL</b>							
<b>FOURTH/ Spring</b>	Fifth	Programme Core (PC)	CS650	Thesis Part II				16	
	<b>TOTAL</b>								<b>16</b>
<b>TOTAL FOR SIXTH LEVEL</b>								<b>32</b>	
<b>GRAND TOTAL FOR M.TECH PROGRAMME (38 + 32)</b>								<b>70</b>	

Programme Elective List for M.Tech (Software Engineering)								
SEMESTER / Session of Study (Recommended)	Course Level	Category of Course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial; P- Practicals</i>			Total Credits C- Credits
					L (Periods/ week )	T (Periods/ week)	P (Periods/ week)	C
<b>FIRST / Monsoon</b>	5	PE 1	CS508	Software Architecture and Integration	3	0	0	3
			IT507	Data Communication and Computer Networks	3	0	0	3
			CS511	Advanced Database Management system	3	0	0	3
			IT508	Cloud Computing	3	0	0	3
		<b>LABORATORIES</b>						
	5	PE LAB 1	IT509	Matlab Programming	0	0	4	2
			IT510	Java Programming	0	0	4	2
IT511			R Programming	0	0	4	2	
<b>SECOND/ Spring</b>	5	PE 2	CS519	Software Reliability	3	0	0	3
			CS520	Service Oriented Architecture	3	0	0	3
			IT518	Internet of Things(IoT)	3	0	0	3
		<b>LABORATORIES</b>						
	5	PE LAB 2	CS521	Software Modelling Lab	0	0	4	2
IT519			Internet of Things(IoT) Lab	0	0	4	2	
<b>THIRD / Monsoon</b>	6	PE 3	CS607	Intelligent Systems	3	0	0	3
			CS608	Software Defined Networking	3	0	0	3
	5		CS515	Advanced Operating System	3	0	0	3
		<b>LABORATORIES</b>						
	6	PE LAB 3	IT603	Python Programming	0	0	4	2
			IT604	Web App Development Lab	0	0	4	2
5	CS516		Advanced Operating System Lab	0	0	4	2	

Open Elective List for M. Tech Program								
SEMESTER / Session of Study (Recommended)	course Level	Category of Course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial;P- Practicals</i>			Total Credits C- Credits
					L (Periods/ week )	T (Periods/ week)	P (Periods/ week)	C
<b>FIRST / Monsoon</b>	5	OE 1	CS514	Software Metrics	3	0	0	3
	5		CS522	Pattern Recognition and Application	3	0	0	3
	5		IT518	Internet of Things	3	0	0	3
	5		IT522	Cyber Security and Digital Forensics	3	0	0	3
<b>SECOND/ Spring</b>	5	OE 2	IT523	Biometric Security	3	0	0	3
	5		IT504	Applied Cryptography	3	0	0	3
	5		IT524	Image Processing Techniques	3	0	0	3
	5		CS524	Soft Computing	3	0	0	3
	5		CS512	Artificial Intelligence	3	0	0	3
	5		IT516	Data Mining and Data Analysis	3	0	0	3

\*\* indicates program elective (PE)

\* indicates Open Elective (OE)