

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEWCOURSE STRUCTURE - To be effective from academic session 2018- 19
Based on CBCS system & OBE model
Recommended scheme of study
(For MSc. in Mathematics)

Semester/ Session of Study (Recommended)	Level	Category of course	Course Code	Subjects	Mode of delivery & credits <i>L-Lecture; T-Tutorial;P-Practicals</i>			Total Credits <i>C- Credits</i>
					L <i>(Periods/week)</i>	T <i>(Periods/week)</i>	P <i>(Periods/week)</i>	C
THEORY								
FIRST Monsoon	4	PC Program Core	MA401	Real Analysis and Measure Theory	3	1	0	4
			MA402	Advanced Complex Analysis	3	1	0	4
			MA420	Probability and Statistical Analysis	3	1	0	4
			MA422	Abstract Algebra	3	0	0	3
			CA401	Programming with C	3	0	0	3
	PE* Program Electives	Dept. Codes	PE-X ^a	3	0	0	3	
	OE* Open Electives		OE-III	3	0	0	3	
LABORATORIES								
4	PC	CA402	Programming with C Lab.	0	0	3	1.5	
		MA421	Probability and Statistics Lab.	0	0	3	1.5	
TOTAL								27
THEORY								
SECOND Spring	4	PC	MA412	Topology	3	1	0	4
			MA423	Numerical Analysis	3	1	0	4
			MA414	Advanced Operation Research	3	1	0	4
			MA425	Fluid Dynamics	3	0	0	3
	PE* Dept. Codes	PE-XI ^b	3	0	0	3		
	OE* Dept. Codes	OE-IV	3	0	0	3		
LABORATORIES								
4	PC	MA424	Numerical Analysis Lab	0	0	3	1.5	
		MA415	Advanced Operation Research Lab.	0	0	3	1.5	
TOTAL								24
THEORY								
THIRD Monsoon	5	PC	MA 501	Functional Analysis	3	1	0	4
			MA 502	Number Theory	3	1	0	4
			MA 510	Advanced Differential Equations	3	0	0	3
		PE* Dept. Codes	PE-XII ^c	3	0	0	3	
	PE-XIII ^d		3	0	0	3		
	2	MC	MT204	Constitution of India	2	0	0	0
TOTAL								17
THEORY								
FOURTH Spring	5	RP Research Project / Industry Internship	MA511	Research Project / Industry Internship	0	0	0	12
TOTAL								12
Minimum requirement for Degree award of M. Sc. in Mathematics (1st - 4th Semester)								80
*Course Code and Course Name of Program Electives and open electives will depend on the choice of the subjects from that group.								

DEPARTMENT OF MATHEMATICS PROGRAMME ELECTIVES : PE OFFERED FOR MSC MATHEMATICS: SEMESTER 1-4/ Level 4-5								
Programme	LEVEL	Prerequisites Subjects with code	Code no.	Name of the PE subjects	L	T	P	C
PE X ^a I Sem.	4	MA106, MA201, MA301	MA405	Mathematical Modelling	3	0	0	3
		MA205	MA406	Fuzzy Mathematical Programming	3	0	0	3
		MA301	MA407	Survey Sampling				
		MA106, MA201	MA408	Theory of Elasticity	3	0	0	3
		MA105	MA410	Differential Geometry	3	0	0	3
		MA106, MA201	MA411	Computational Mathematics	3	0	0	3
		MA205	MA430	Discrete Mathematical Structure	3	0	0	3
PE XI ^b II Sem.	4	MA301	MA416	Statistical Inference	3	0	0	3
		MA106, MA201, MA311	MA417	Numerical Solutions of Boundary Value Problems	3	0	0	3
		MA106, MA201	MA418	Mechanics	3	0	0	3
		MA106, MA201	MA419	Mathematical Ecology	3	0	0	3
		MA206	MA426	Operator Theory	3	0	0	3
		MA309, MA414	MA427	Multiple-Criteria Decision Making	3	0	0	3
PE XII ^c III Sem.	5	MA301	MA503	Statistical Computing	3	0	0	3
		MA106, MA201	MA504	Finite Element Methods	3	0	0	3
		MA106, MA201, MA309, MA418	MA505	Calculus of Variations and Optimal Control	3	0	0	3
		MA102, MA106, MA201	MA506	Advanced Difference Equations	3	0	0	3
PE XIII ^d III Sem.	5	MA106, MA201	MA507	Computational Fluid Dynamics	3	0	0	3
		MA106, MA201	MA508	Qualitative Theory of Differential Equations	3	0	0	3

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Details of credits distribution for M.Sc. in Mathematics (category wise)			
UG Program (1st - 6th Semester)			
S.No	Category	Credits	
1	PC-Program Core	50	
2	PE-Program Electives	12	
3	OE-Open Electives	6	
4	Research Projects	12	
5	MC- Mandatory Course (Constitution of India)	0	
TOTAL		80	
Total Program credit for M.Sc. in Mathematics =80			