

**BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI**  
**COURSE STRUCTURE - (w.e.f. academic session 2021- 22)**  
*Based on CBCS system & OBE model for M. Tech. (Aerodynamics)*

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 <i>C- Credits</i>
					L <i>(Periods/week)</i>	T <i>(Periods/week)</i>	P <i>(Periods/week)</i>	C
FIRST / Monsoon	FIFTH	<b>THEORY</b>						
		Programme Core (PC)	SR 501	Elements of Rocket Propulsion	3	0	0	3
			SR 502	Elements of Aerodynamics	3	0	0	3
			SR 503	Space Engineering & Space Dynamics	3	0	0	3
			SR 611	Fundamentals of Turbulence	3	0	0	3
	Programme Elective (PE)	SR 508 SR 509	(One Course to be selected) Aerodynamic Stability and Control Aeroacoustics	3	0	0	3	
	<b>LABORATORIES</b>							
		Programme Core (PC)	SR 506	Rocket Propulsion Lab	0	0	4	2
			SR 507	Aerodynamics Lab	0	0	4	2
			<b>TOTAL</b>					

THEORY									
SECOND/ Spring	FIFTH	Programme Core (PC)	SR 576	Compressible Flows	3	0	0	3	
			SR 577	Boundary Layer Theory	3	0	0	3	
			SR 578	Computational Fluid Dynamics	3	0	0	3	
		Programme Elective (PE)	(Two Courses to be selected)			3	0	0	3
			SR 579	Experimental Aerodynamics					
			SR 580	Elements of Hypersonic Flight					
			SR 581	Missile Aerodynamics					
		SR 612	Aerodynamics of Internal Flows						
		SR 613	Basics of Measurement						
SR 614	Turbulence Modelling in CFD								
<b>LABORATORIES</b>									
Programme Core (PC)	SR 582	Low Speed Aerodynamics Lab	0	0	4	2			
	SR 583	High Speed Aerodynamics Lab	0	0	4	2			
<b>TOTAL</b>								<b>19</b>	
<b>TOTAL FOR FIFTH LEVEL</b>								<b>38</b>	
THEORY									
THIRD /Monsoon		Programme Core (PC)	SR 621	Thesis Part - I				8	
			Open Elective (OE)		OE- 1/MOOC-1	3	0	0	3
				OE- 2/MOOC-2	3	0	0	3	
		<b>TOTAL</b>							
FOURTH/ Spring	SIXTH	Programme Core (PC)	SR 621	Thesis Part - II				16	
		<b>TOTAL</b>							
<b>TOTAL FOR SIXTH LEVEL</b>								<b>30</b>	
<b>GRAND TOTAL FOR M.TECH PROGRAMME (38 + 30)</b>								<b>68</b>	

**DEPARTMENT OF SPACE ENGINEERING & ROCKETRY  
PROGRAMME ELECTIVES (PE)  
OFFERED FOR M. TECH (AERODYNAMICS)**

<b>PE / LEVEL</b>	<b>Code no.</b>	<b>Name of the PE subjects</b>	<b>Prerequisites Subjects with code</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>FIFTH</b>	SR 508	Aerodynamic Stability and Control		3	0	0	3
	SR 509	Aeroacoustics		3	0	0	3
	SR 579	Experimental Aerodynamics		3	0	0	3
	SR 580	Elements of Hypersonic Flight		3	0	0	3
	SR 581	Missile Aerodynamics		3	0	0	3
<b>SIXTH</b>	SR 612	Aerodynamics of Internal Flows		3	0	0	3
	SR 613	Basics of Measurement		3	0	0	3
	SR 614	Turbulence Modelling in CFD		3	0	0	3
<b>* PROGRAMME ELECTIVES TO BE OPTED ONLY BY THE DEPARTMENT STUDENTS</b>							

**DEPARTMENT OF SPACE ENGINEERING & ROCKETRY**  
**OPEN ELECTIVES (OE)\***  
**OFFERED FOR LEVEL 5-6**

<b>OE / LEVEL</b>	<b>Code no.</b>	<b>Name of the OE subjects</b>	<b>Prerequisites Subjects with code</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>FIFTH</b>	SR 509	Aero acoustics	NIL	3	0	0	3
	SR 505	Flame Propagation & Stability	NIL	3	0	0	3
	SR 553	Ignition and Extinction in Chemical Rockets	NIL	3	0	0	3
	SR 555	Heat Transfer in Space Applications	NIL	3	0	0	3
	SR 579	Experimental Aerodynamics	NIL	3	0	0	3
<b>SIXTH</b>	SR 603	Computational Combustion	NIL	3	0	0	3
<b>* OPEN ELECTIVES TO BE OPTED ONLY BY OTHER DEPARTMENT STUDENTS</b>							