

## Department of Applied Mechanics

### AM 1: M.Tech in Computational and Experimental Mechanics

Semester I								
S No	Course No	Course Name	L	T	E	P	O	C
1	AM 5390	Advanced Solid Mechanics	3	0	0	0	6	9
2	AM 5530	Advanced Fluid Mechanics	3	0	0	0	6	9
3		Computational Core I	3	0	0	0	6	9
4		Computational Core II	3	0	0	0	6	9
5		Elective 1^^	3	0	0	0	6	9
6	AM 5810	Computational Lab	0	0	0	3	3	6
<b>Total Credits</b>			<b>51</b>					

Semester II								
S No	Course No	Course Name	L	T	E	P	O	C
1		Experimental Core	3	0	0	0	6	9
2		Elective 2^^	3	0	0	0	6	9
3		Elective 3^^	3	0	0	0	6	9
4		Elective 4^^	3	0	0	0	6	9
5		Elective 5^^	3	0	0	0	6	9
6	AM 5400 / AM 5820	Experimental Lab^	0	0	0	6	6	12
<b>Total Credits</b>			<b>57</b>					

Summer								
S No	Course No	Course Name	L	T	E	P	O	C
1		Project Summer+	0	0	0	0	20	20
<b>Total credits</b>			<b>20</b>					

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Semester III								
S No	Course No	Course Name	L	T	E	P	O	C
1		Elective 6 <sup>^^</sup>	3	0	0	0	6	9
2	AM 5420	Project I	0	0	0	0	30	30
3	AM 5480	Seminar	0	0	0	0	3	3
<b>Total Credits</b>			<b>42</b>					

Semester IV								
S No	Course No	Course Name	L	T	E	P	O	C
1	AM 5420	Project II	0	0	0	0	40	40
<b>Total Credits</b>			<b>40</b>					

**Total Credits: 210**

Basic Cores (Compulsory for all students)		L	T	E	P	O	C
<b>AM 5390</b>	Advanced Solid Mechanics	3	0	0	0	6	9
<b>AM 5530</b>	Advanced Fluid Mechanics	3	0	0	0	6	9

Computational Cores (any 2)		L	T	E	P	O	C
<b>AM 5450</b>	Fundamentals of Finite Element Analysis	3	0	0	0	6	9
<b>AM 5630</b>	Foundation of Computational Fluid Dynamics	3	0	0	0	6	9
<b>AM 5600</b>	Computational Methods in Mechanics	3	0	0	0	6	9

Experimental Cores (any 1)		L	T	E	P	O	C
<b>AM 5240</b>	Experimental Solid Mechanics	3	0	0	0	6	9
<b>AM XXXX</b>	Experimental Fluid Mechanics	3	0	0	0	6	9

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+ **Project Summer:** Could be Industrial Internship / Project within IIT

^ **Experimental Lab:** AM 5400 (need to co-credit AM5240: Experimental Solid Mechanics) or  
AM 5820 (need to co-credit AM XXXX: Experimental Fluid Mechanics)

^^ Of the 6 electives, at least three have to be from AM1 electives

	<b>AM1 Electives</b>	<b>L</b>	<b>T</b>	<b>E</b>	<b>P</b>	<b>O</b>	<b>C</b>
AM 5113	Atomization in Sprays	3	0	0	0	6	9
AM 6513	Advanced CFD	3	0	0	0	6	9
AM 5600	Advanced Gas Dynamics	3	0	0	0	6	9
AM 6513	Advanced CFD	3	0	0	0	6	9
AM 5570	Introduction to Turbulence	3	0	0	0	6	9
AM 6590	Turbulent Shear Flows	3	0	0	0	6	9
AM 5640	Turbulence modeling	3	0	0	0	6	9
AM 6515	Boundary Layer Stability	3	0	0	0	6	9
AM 6512	Application to Molecular Dynamics	3	0	0	0	6	9
AM 6001	Theory of Free Surface Wave motion	3	0	0	0	6	9
AM 5114	Flow and Transport in Heterogeneous Porous Media	3	0	0	0	6	9
AM 6110	Bio-Fluid Mechanics	3	0	0	0	6	9
AM 5540	Hydrodynamics	3	0	0	0	6	9
AM XXXX	Micro-Hydrodynamics	3	0	0	0	6	9
AM 5460	Physicochemical Hydrodynamics	3	0	0	0	6	9
AM 6517	Foundations of Micro and Nano scale Fluid Mechanics	3	0	0	0	6	9
AM 6570	Flow induced Vibrations	3	0	0	0	6	9
AM 5060	Topics in Thermal Engineering	3	0	0	0	6	9
AM 5550	Vorticity Dynamics	3	0	0	0	6	9
AM 5080	Industrial Fluid Mechanics	3	0	0	0	6	9
AM 5080	High Performance Computing for Engineering Applications	3	0	0	0	6	9
AM 50XX	Linear Dynamical Systems	3	0	0	0	6	9
AM 5021	Materials, Mechanics and Design	3	0	0	0	6	9
AM 5040	Introduction to Nanomechanics	3	0	0	0	6	9
AM 5112	Computational Mechanics for Smart Systems	3	0	0	0	6	9

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	<b>AM1 Electives</b>	<b>L</b>	<b>T</b>	<b>E</b>	<b>P</b>	<b>O</b>	<b>C</b>
AM 5116	Structural Control	3	0	0	0	6	9
AM 5210	Approximate Methods in Engineering Analysis	3	0	0	0	6	9
AM 5220	Theory of Viscoelasticity	3	0	0	0	6	9
AM 5250	Theory of Plasticity	3	0	0	0	6	9
AM 5260	3-Dimensional Problems in Theory of Elasticity	3	0	0	0	6	9
AM 5290	Dynamics of structures	3	0	0	0	6	9
AM 5300	Engineering Plasticity	3	0	0	0	6	9
AM 5320	Nonlinear Stress Analysis	3	0	0	0	6	9
AM 5340	Stochastic Processes in Structural Mechanics	3	0	0	0	6	9
AM 5360	Composite Structures	3	0	0	0	6	9
AM 5430	Boundary Element Methods	3	0	0	0	6	9
AM 5440	Engineering Fracture Mechanics	3	0	0	0	6	9
AM 5470	Analysis & Design of Smart Material Structure	3	0	0	0	6	9
AM 5620	Theory of Plates and Shells	3	0	0	0	6	9
AM 5650	Nonlinear Dynamics	3	0	0	0	6	9
AM 6291	Computational Structural Dynamics	3	0	0	0	6	9
AM 6511	System Identification in Vibrating Structures	3	0	0	0	6	9
ID 5040	Engineering Plasticity	3	0	0	0	6	9
ID 6010	Constitutive Modeling in Continuum Mechanics	3	0	0	0	6	9
ID 6080	Impact Mechanics	3	0	0	0	6	9