

<b>Course Number and Name</b>	
BME010 - ADVANCED TURBO MACHINES	
<b>Credits and Contact Hours</b>	
3&45	
<b>Course Coordinator's Name</b>	
Mr.Thirumavalavan	
<b>Text Books and References</b>	
<p><b>TEXTBOOKS:</b></p> <ol style="list-style-type: none"> <li>1. S.M.Yahya – Turbines, Compressors and Fans – Tata McGraw Hill Publishing Company, 2005.</li> <li>2. V.Ganesan – Gas Turbines - Tata McGraw Hill Publishing Company, New Delhi- 2003.</li> </ol> <p><b>REFERENCES:</b></p> <ol style="list-style-type: none"> <li>1. Earl Logan Jr, Ramendra Roy.,Handbook of Turbo Machinery., CRC Press.</li> <li>2. <a href="https://books.google.co.in/books/about/Advanced_topics_in_turbomachinery techno.html?id=qs9QAAAAYAAJ&amp;redir_esc=y">https://books.google.co.in/books/about/Advanced_topics_in_turbomachinery techno.html?id=qs9QAAAAYAAJ&amp;redir_esc=y</a></li> </ol>	
<b>Course Description</b>	
To develop skilled manpower in the field of turbo machines with the knowledge of transport processes through the turbo machine passage, analytical, numerical and experimental tools for design, operation, performance evaluation and innovative research in the area of turbo machines”	
<b>Prerequisites</b>	<b>Co-requisites</b>
MACHINE DESIGN, MANUFACTURING TECHNOLOGY	Nil
required, elective, or selected elective (as per Table 5-1)	
Core elective	
<b>Course Outcomes (COs)</b>	
CO1	Understand the performance evaluation, operation and maintenance of rotodynamic machines.
CO2	Will have knowledge on conceptual design of different components of thermal and hydroturbomachines.
CO3	Design and develop turbomachineries
CO4	Learn the principle of machineries
CO5	Learn axial and radial flow turbines
CO6	Learn the principles and application of turbines

Student Outcomes (SOs) from Criterion 3 covered by this Course													
COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l	
CO1													
CO2	H	H							M				
CO3		H				M				M	H		
CO4	H												H
CO5		H				M							
CO6													H
List of Topics Covered													
<b>UNIT I PRINCIPLES</b>										<b>9</b>			
Energy transfer between fluid and rotor, classification of fluid machinery, dimensionless parameters, specific speed, applications, stage velocity triangles, work and efficiency for compressors and turbines.													
<b>UNIT II IMPELLER BLADES</b>										<b>9</b>			
Types, stage and design parameters, flow analysis in impeller blades, Volute and diffusers, losses, characteristics curves and selection, fan drives and fan noise.													
<b>UNIT III CENTRIFUGAL COMPRESSOR</b>										<b>9</b>			
Construction details, types, impeller flow losses, slip factor, diffuser analysis, losses and performance curves.													
<b>UNIT IV AXIAL FLOW COMPRESSOR</b>										<b>9</b>			
Stage velocity triangles, enthalpy-Entropy diagrams, stage losses and efficiency, work down factor, simple stage, design problems and performance characteristics.													
<b>UNIT V AXIAL AND RADIAL FLOW TURBINES</b>										<b>9</b>			
Stage velocity diagrams, reaction stages, losses and coefficients, blade design principles, testing and performance characteristics.													