

**Harcourt Butler Technological Institute, Kanpur**  
**New Study & Evaluation Scheme [Effective from the Session 2013-14]**

**B.Tech. Mechanical Engineering**

**YEAR I, SEMESTER-I Branch: Common to all branches**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credit
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IMA101	Mathematics-I	3	1	0	30	20	50	100	150	4
2	IPH101/ICY101	Physics/Chemistry	3	1	0	30	20	50	100	150	4
3	IEE101/IET101	Electrical Engg./Electronics and Instrumentation Engg	3	1	0	30	20	50	100	150	4
4	IME101/ICS101	Engg Mechanics/Computer Concepts and C Programming	3	1	0	30	20	50	100	150	4
5	IHU101/ICE101	Professional Communication/Engineering Graphics	3	1	0	30	20	50	100	150	4
6	IHU102/ICE102	Remedial English/Environment and Ecology*	2	0	0				50	50	Audit
<b>PRACTICAL/TRAINING/PROJECT</b>											
7	IPH151/ICY151	Physics/Chemistry	0	0	3	10	10	20	30	50	1
8	IHU151/ICS151	Language Lab/Computer Lab	0	0	3	10	10	20	30	50	1
9	IEE151/IWS151	Electrical Engg./Workshop Practice	0	1	3	30	20	50	50	100	2
10	IGP101	General Proficiency						50		50	
		<b>Total</b>	<b>17</b>	<b>6</b>	<b>9</b>					<b>1000</b>	

*\*Environment ecology and Remedial English Language is compulsory Audit-courses.*

*Candidate has to secure minimum 30% pass marks.*

**YEAR I, SEMESTER-II Branch: Common to all branches**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credit
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IMA201	Mathematics-II	3	1	0	30	20	50	100	150	4
2	IPH201/ICY201	Physics/Chemistry	3	1	0	30	20	50	100	150	4
3	IEE201/IET201	Electrical Engg./Electronics and Instrumentation Engg	3	1	0	30	20	50	100	150	4
4	IME201/ICS201	Engg Mechanics/Computer Concepts and C Programming	3	1	0	30	20	50	100	150	4
5	IHU201/ICE201	Professional Communication/Engineering Graphics	3	1	0	30	20	50	100	150	4
6	IHU202/ICE202	Remedial English/Environment and Ecology*	2	0	0	-	-	-	50	50	Audit
<b>PRACTICAL/TRAINING/PROJECT</b>											
7	IPH251/ICY251	Physics/Chemistry	0	0	3	10	10	20	30	50	1
8	IHU251/ICS251	Language Lab/Computer Lab	0	0	3	10	10	20	30	50	1
9	IEE251/IWS251	Electrical Engg./Workshop Practice	0	1	3	30	20	50	50	100	2
10	IGP201	General Proficiency						50		50	
		<b>Total</b>	<b>17</b>	<b>6</b>	<b>9</b>					<b>1000</b>	

*\*Environment ecology and Remedial English Language is compulsory Audit-courses.*

*Candidate has to secure minimum 30% pass marks.*

Note: Upto 2<sup>nd</sup> Semester common with all branches

**Harcourt Butler Technological Institute, Kanpur**  
**New Study & Evaluation Scheme [Effective from the Session 2014-15]**  
**B.Tech. Mechanical Engineering**  
**YEAR II, SEMESTER-III**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IMA	Mathematics III #	3	1	0	30	20	50	100	150	4
2	ICE	Fluid Mechanics*	3	1	0	30	20	50	100	150	4
3	IME-301	Strength of Materials	3	1	0	30	20	50	100	150	4
4	IME-302	Materials Science	3	1	0	30	20	50	100	150	4
5	IME-303	Engineering Thermodynamics	3	1	0	30	20	50	100	150	4
<b>PRACTICAL/TRAINING/PROJECT</b>											
6	IME-351	Applied Mechanics Lab	0	0	2	10	10	20	30	50	1
7	IME-352	Material Science Lab	0	0	2	10	10	20	30	50	1
8	IME-353	Machine Drawing Lab	0	0	2	10	10	20	30	50	1
9	ICE	Fluid Mechanics Lab*	0	0	2	10	10	20	30	50	1
10	IGP-301	General Proficiency						50		50	1
		<b>Total</b>	15	5	8					1000	25

*\*To be offered by Civil Engg. Dept., # To be offered by Mathematics Dept.*

**YEAR II, SEMESTER-IV**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IME-401	Manufacturing Sc & Engg – I	3	1	0	30	20	50	100	150	4
2	IME-402	Heat and Mass Transfer	3	1	0	30	20	50	100	150	4
3	IME-403	Energy Conversion Systems	3	1	0	30	20	50	100	150	4
4	IME-404	Kinematics of Machines	3	1	0	30	20	50	100	150	4
5	IMA	Computer Oriented Numerical Methods#	3	1	0	30	20	50	100	150	4
6	ICS-401	Cyber Security (For CE,CH,CS,EE,ET,ME only)	2	0	0				50	50	Audit
<b>PRACTICAL/TRAINING/PROJECT</b>											
6	IME-451	Manufacturing Sc & Engg-I Lab	0	0	2	10	10	20	30	50	1
7	IME-452	Heat & Mass Transfer Lab	0	0	2	10	10	20	30	50	1
8	IME-453	Energy Conversion Lab	0	0	2	10	10	20	30	50	1
9	IMA	Numerical Techniques Lab#	0	0	2	10	10	20	30	50	1
10	IGP-401	General Proficiency						50		50	1
		<b>Total</b>	17	5	8					1000	25

*# To be offered by Mathematics Dept.*

**Harcourt Butler Technological Institute, Kanpur**  
**New Study & Evaluation Scheme [Effective from the Session 2015-16]**  
**B.Tech. Mechanical Engineering**  
**YEAR III, SEMESTER-V**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IME-501	Manufacturing Science & Engineering II	3	1	0	30	20	50	100	150	4
2	IME-502	IC Engines	3	1	0	30	20	50	100	150	4
3	IME-503	Dynamics of Machines	3	1	0	30	20	50	100	150	4
4	IME-504	Elements of Mechanical Design	3	1	0	30	20	50	100	150	4
5	IME-505	Measurement Systems	3	1	0	30	20	50	100	150	4
<b>PRACTICAL/TRAINING/PROJECT</b>											
6	IME-551	MSE-II Lab	0	0	2	10	10	20	30	50	1
7	IME-552	I C Engine Lab	0	0	2	10	10	20	30	50	1
8	IME-553	Theory of Machine Lab	0	0	2	10	10	20	30	50	1
9	IME-554	Machine Design – I Lab	0	0	2	10	10	20	30	50	1
10	IGP-501	General Proficiency	-	-	-	-	-	50	-	50	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>8</b>					<b>1000</b>	<b>25</b>

**YEAR III, SEMESTER-VI**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IME-601	Fluid Machinery	3	1	0	30	20	50	100	150	4
2	IME-602	Design of Mechanical Components	3	1	0	30	20	50	100	150	4
3	IME-603	Computer Aided Design	3	1	0	30	20	50	100	150	4
4	IME-604	Management of Production System	3	1	0	30	20	50	100	150	4
5	IME-611 to 617	Elective I	3	1	0	30	20	50	100	150	4
<b>PRACTICAL/TRAINING/PROJECT</b>											
6	IME-651	Fluid Machinery Lab	0	0	2	10	10	20	30	50	1
7	IME-652	Machine Design II Lab	0	0	2	10	10	20	30	50	1
8	IME-653	Measurement & Metrology Lab	0	0	2	10	10	20	30	50	1
9	IME-654	Seminar	0	0	3	-	-	50	-	50	1
10	IGP-601	General Proficiency	-	-	-	-	-	50	-	50	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>9</b>					<b>1000</b>	<b>25</b>
<b>Industrial Training of 4-6 weeks after VI Semester will be evaluated in VII sem.</b>											

**ELECTIVE I**

- Product Design and Development (IME-611)
- Engineering Materials (IME-612)
- Mechatronics ((IME-613)
- Advanced Fluid Mechanics (IME-614)
- Introduction to Nuclear Engg. (IME-615)
- Production Planning & Control (IME-616)
- Industrial Automation (IME-617)

*Theory Course for III B.Tech. BE,FT,OT,PT,PL,LT: IME-506 Elements of Mechanical Engineering (3-1-0) is offered by the Department of Mechanical Engineering*

*Note: Theory Course for III. B.Tech. BE,FT,OT,PT,PL,LT: IME-605: Machine Design (3-1-0) is offered by the Department of Mechanical Engineering*

**Harcourt Butler Technological Institute, Kanpur**

**New Study & Evaluation Scheme [Effective from the Session 2016-17]**

**B.Tech. Mechanical Engineering**

**YEAR IV, SEMESTER-VII**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IME-701	Computer Aided Manufacturing	3	1	0	30	20	50	100	150	4
2	IME-702	Refrigeration & Air Conditioning	3	1	0	30	20	50	100	150	4
3	IME-703	Advanced Manufacturing Processes	3	1	0	30	20	50	100	150	4
4	IME-721 to 727	Elective II	3	1	0	30	20	50	100	150	4
5	IOE-741	Open Elective	3	1	0	30	20	50	100	150	4
<b>PRACTICAL/TRAINING/PROJECT</b>											
6	IME-751	CAD/CAM Lab	0	0	2	10	10	20	30	50	1
7	IME-752	RAC Lab	0	0	2	10	10	20	30	50	1
8	IME-753	Industrial/Practical Training and report presentation**	0	0	2	-	-	50	-	50	1
9	IME-754	Project*	0	0	3	-	50	50	-	50	1
10	IGP-701	General Proficiency	-	-	-	-	-	50	-	50	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>9</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1000</b>	<b>25</b>
		<b>ELECTIVE II</b>									
		Composite Materials (IME-721) Mechanical Vibrations (IME-722) Micro Manufacturing (IME-723) Design of Thermal Systems (IME-724) Non Conventional Energy Resources and Utilization (IME-725) Maintenance Engineering and Management (IME-726) Principles of Machine Tool Design (IME-727)									
										<b>IOE-741 Open Elective for NON-ME students Non-Conventional Energy Resources &amp; Utilization</b>	

Note- \*\* Practical Training (4-weeks) done after 6<sup>th</sup> Semester would be evaluated in 7<sup>th</sup> semester through Report and viva voce etc.

\* Project should be initiated in 7<sup>th</sup> semester beginning and should be completed by the end of 8<sup>th</sup> semester with good report and power point presentation.

**YEAR IV, SEMESTER-VIII**

Sl No	Course Code	Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY</b>											
1	IME-801	Automobile Engineering	3	1	0	30	20	50	100	150	4
2	IME-802	Operations Research	3	1	0	30	20	50	100	150	4
3	IME-831 to 838	Elective III	3	1	0	30	20	50	100	150	4
4	IME-841 to 848	Elective IV	3	1	0	30	20	50	100	150	4
<b>PRACTICAL/TRAINING/PROJECT</b>											
5	IME-851	Automobile Engineering Lab	0	0	2	10	10	20	30	50	1
6	IME-852	Project	0	0	12	-	100	100	200	300	6
7	IGP-801	General Proficiency	-	-	-	-	-	50	-	50	1
		<b>Total</b>	<b>12</b>	<b>4</b>	<b>14</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1000</b>	<b>24</b>
<b>ELECTIVE III</b>						<b>ELECTIVE IV</b>					
<ul style="list-style-type: none"> <li>Pressure Vessel Design (IME-831)</li> <li>Finite Element Method (IME-832)</li> <li>Non Destructive Evaluation (IME-833)</li> <li>Solar Energy (IME-834)</li> <li>Thermal Turbo Machines (IME-835)</li> <li>Metal Forming (IME-836)</li> <li>Introduction to Robotics (IME-837)</li> <li>Optimization Methods in Engineering (IME-838)</li> </ul>						<ul style="list-style-type: none"> <li>Rapid Prototyping and Rapid Tooling (IME-841)</li> <li>Experimental Stress Analysis (IME-842)</li> <li>Bearings and Lubrication (IME-843)</li> <li>Energy Management (IME-844)</li> <li>Power Plant Engineering (IME-845)</li> <li>Computer Integrated Manufacturing System (IME-846)</li> <li>Operations Management (IME-847)</li> <li>Advanced Welding Technology (IME-848)</li> </ul>					

