

Vetted Course Outline for B. Tech. Mechanical Engineering,  
Batch 2016 onwards

**1<sup>st</sup> Semester**

<b>Course code</b>	<b>Course Title</b>	<b>Type of course</b>	<b>L - P</b>	<b>Credit</b>
PHY-111T	Physics I	C	4 - 0	4
CHM-111T	Chemistry I	C	4 - 0	4
MTH-111T	Mathematics I	C	4 - 0	4
ELE-101T	Basic Electrical Engineering	CF	3 - 0	3
BIO-101T	Environmental Science	CF	4 - 0	4
CIV101T/P	Engineering Drawing	CF	2 - 3	4
MEC-101P	Engineering Workshop	CF	0 - 3	2
PHY-112P	Physics I Lab	C	0 - 2	1
CHM-112P	Chemistry I Lab	C	0 - 2	1
<b>Total Credits</b>			<b>21 - 10</b>	<b>27</b>

**2<sup>nd</sup> Semester**

<b>Course code</b>	<b>Course Title</b>	<b>Type of course</b>	<b>L - P</b>	<b>Credit</b>
PHY-211T	Physics II	C	4 - 0	4
CHM-211T	Chemistry II	C	4 - 0	4
MTH-211T	Mathematics II	C	4 - 0	4
CSE-201T	C Programming	CF	4 - 0	4
CIV-201T	Elements of Civil Engineering	CF	3 - 0	3
ECE-201T	Basic Electronics & Communication Engineering	CF	3 - 0	3
PHY-212P	Physics I Lab	C	0 - 2	1
CHM-212P	Chemistry I Lab	C	0 - 2	1
CSE-202P	C Programming Lab	CF	0 - 2	1
<b>Total Credits</b>			<b>22 - 6</b>	<b>25</b>

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**3<sup>rd</sup> Semester**

<b>Course code</b>	<b>Course Title</b>	<b>Type of course</b>	<b>L - P</b>	<b>Credit</b>
MEC-311T	Fundamental Dynamics	C	3 - 0	3
MEC-312T	Mechanics of Solids	C	4 - 0	4
MEC-313T	Manufacturing Processes - I	C	3 - 0	3
MEC-314T	Engineering Thermodynamics	C	3 - 0	3
MEC-315T	Machine Drawing and Solid Modelling	C	1 - 4	3
MTH-313T	Laplace, Fourier Transforms and Complex Analysis	C	4 - 0	4
XXX-XXX	Generic Elective - I	G	x - x	x
MEC-312P	Mechanics of Solids Lab	C	0 - 2	1
MEC-313P	Manufacturing Processes - I Lab	C	0 - 2	1
<b>Total Credits</b>			<b>18 - 8</b>	<b>22+x</b>

**4<sup>th</sup> Semester**

<b>Course code</b>	<b>Course Title</b>	<b>Type of course</b>	<b>L - P</b>	<b>Credit</b>
MEC-411T	Manufacturing Processes - II	C	3 - 0	3
MEC-412T	Fluid Mechanics	C	4 - 0	4
MEC-413T	Kinematics and Dynamics of Machines	C	4 - 0	4
MEC-414T	Material Science and Engineering	C	3 - 0	3
MEC-415T	Applied Thermodynamics	C	3 - 0	3
	Electrical Engineering Technology	C	3 - 0	3
	Open Elective - I	E	x - x	x
MEC-411P	Manufacturing Processes - II Lab	C	0 - 2	1
MEC-412P	Fluid Mechanics Lab	C	0 - 2	1
MEC-413P	Theory of Machines Lab	C	0 - 2	1
<b>Total Credits</b>			<b>20 - 6</b>	<b>23+x</b>

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**5<sup>th</sup> Semester**

Course code	Course Title	Type of course	L - P	Credit
MEC-511T	System Dynamics	C	3 - 0	3
MEC-512T	Heat Transfer	C	4 - 0	4
MEC-513T	Design of Machine Elements - I	C	4 - 0	4
MEC-514T	Measurement and Instrumentation	C	3 - 0	3
	Probability and Statistics	C	3 - 0	3
	Industrial Electronics	C	3 - 0	3
	Open Elective - II	E	x - x	X
MEC-511P	Heat Transfer Lab	C	0 - 2	1
MEC-512P	Applied Thermodynamics Lab	C	0 - 2	1
	Industrial Electronics Lab	C	0 - 2	1
<b>Total Credits</b>			<b>20 - 4</b>	<b>22+x</b>

**6<sup>th</sup> Semester**

Course code	Course Title	Type of course	L - P	Credit
MEC-611T	Industrial Engineering - I	C	3 - 0	3
MEC-612T	Design of Machine Elements - II	C	4 - 0	4
MEC-613T	Mechanical Vibrations	C	4 - 0	4
MEC-614T	Hydraulic Machines	C	3 - 0	3
	Department Elective - I	E	3 - 0	3
	Introduction to Embedded Systems	C	3 - 0	3
	Open Elective - III	E	x - x	x
MEC-611P	Hydraulic Machines Lab	C	0 - 2	1
MEC-612P	Vibration Lab	C	0 - 2	1
	Practical Training/Winter Internship			NC
<b>Total Credits</b>			<b>20 - 4</b>	<b>22+x</b>

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**7<sup>th</sup> Semester**

<b>Course code</b>	<b>Course Title</b>	<b>Type of course</b>	<b>L - P</b>	<b>Credit</b>
MEC-711T	Industrial Engineering - II	C	3 - 0	3
MEC-712T	Optimization	C	4 - 0	4
MEC-713T	Control Systems Engineering	C	3 - 0	3
MEC-714T	Numerical Methods in Mech. Eng.	C	3 - 0	3
MEC-715T	Department Elective - II	E	3 - 0	3
	Open Elective - IV	E	x - x	x
MEC-720P	Minor Project/Seminar	C	-	6
MEC-711P	Industrial Engineering Lab	C	0 - 2	1
<b>Total Credits</b>			<b>16 - 2</b>	<b>23+x</b>

**8<sup>th</sup> Semester**

<b>Course code</b>	<b>Course Title</b>	<b>Type of course</b>	<b>L - P</b>	<b>Credit</b>
MEC-811T	Production and Operations Management	C	3 - 0	3
MEC-812T	Internal Combustion Engines	C	3 - 0	3
	Department Elective - III	E	3 - 0	3
	Generic Elective - II	G	x - x	x
MEC-811P	IC Engine Lab	C	0 - 2	1
MEC-820P	Major Project	C	-	12
<b>Total Credits</b>			<b>9 - 2</b>	<b>22+x</b>

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List of Electives:

Course code	Course Title	Type of course	L - P	Credit	Preferred semester	Pre-requisite	Prohibited
MEC-G01T	Basic Mechanical Engineering	G	3 - 0	3	3, 4	-	-
MEC-E01T	Power Plant Engineering	E	3 - 0	3	4, 5	-	MEC-E03T
MEC-E02P	Introduction to MATLAB	E	0 - 3	2	4, 5	CSE-201T	-
MEC-E03T	Hydraulics and Hydraulic Machines	E	3 - 0	3	4, 5	-	MEC-E01T
MEC-E04T	Digital Fabrication	E	2 - 0	2	3, 4	MEC-101P	-
MEC-E05T	Linear Algebra	E	2 - 0	2	4, 5	MTH-111T	-
MEC-E06T	Automobile Engineering	E	3 - 0	3	5, 6	MEC-415T	
MEC-E07T	Refrigeration and Air Conditioning	E	3 - 0	3	6, 7	MEC-313T, MEC-413T	
MEC-E08T	Metrology and Quality Control	E	3 - 0	3	6, 7		
MEC-E09T	Creativity in Engineering	E	3 - 0	3	5, 6	-	
MEC-E10T	Turbo Machinery	E	3 - 0	3	7, 8	MEC-413T	
MEC-E11T	Tribology	E	3 - 0	3	7, 8		
MEC-E12T	CAM and Automation	E	3 - 0	3	6, 7		
MEC-E13T	Process Control and Instrumentation	E	3 - 0	3	6, 7		MEC-713T
MEC-E14T	CNC Machines and Programming	E	3 - 0	3	5, 6		
MEC-E15T	Robotics Engineering	E	3 - 0	3	6, 7		
MEC-E16T	Quality and Reliability	E	3 - 0	3	7, 8		
MEC-E17T	Applied Thermodynamics - II	E	3 - 0	3	6, 7	MEC-413T	
MEC-E18T	Advanced Fluid Mechanics	E	3 - 0	3	7, 8	MEC-412T	
MEC-E19T	Design of Thermal Systems	E	3 - 0	3	7, 8	MEC-413T	
MEC-E20T	Finite Element Methods	E	3 - 0	3	6, 7, 8		
MEC-E21T	Mechatronics	E	3 - 0	3	5, 6, 7		