

**COURSE STRUCTURE  
AND  
DETAILED SYLLABUS**

**R18**

**MECHANICAL  
ENGINEERING**

**For**

**B.TECH. FOUR YEAR DEGREE COURSE**

**(Applicable for the students admitted into Academic Year 2018-19)**

**(I – IV Years Syllabus)**



**RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES**

**Basar, Nirmal, Telangana - 504107**

## **COURSE STRUCTURE (R18) FOR B.TECH.(REGULAR)**

**Applicable for the students of B.Tech. (Regular) from the Academic Year 2018-19  
and onwards**

**Course code and Definition:**

<b>Course Category</b>	<b>Definitions</b>
<b>BSC</b>	<b>Basic Science Courses</b>
<b>ESC</b>	<b>Engineering Science Courses</b>
<b>HSMC</b>	<b>Humanities and Social Sciences including Management Courses</b>
<b>PCC</b>	<b>Professional core courses</b>
<b>PEC</b>	<b>Professional Elective Courses</b>
<b>OEC</b>	<b>Open Elective Courses</b>
<b>LC</b>	<b>Laboratory Courses</b>
<b>MC</b>	<b>Mandatory Courses</b>
<b>SI</b>	<b>Summer Industry Internship</b>
<b>PROJ</b>	<b>Project</b>

**L : Lecture hours per week**

**T: Tutorial hours per week**

**P: Practical hours per week**

**C: Credits per subject**

## B.Tech 1<sup>st</sup> Year

Semester I						
Subject Code	Subject	SSN	L	T	P	C
MA1101	Engineering Mathematics-I	BSC	3	1	0	4
PH1001	Engineering Physics	BSC	3	1	0	4
CE1001	Engineering Graphics	ESC	1	0	4	3
EE1001	Basic Electrical Engineering	ESC	3	1	0	4
HS1001	English	HSMC	2	0	0	2
PH1601	Engineering Physics Lab	BSC	0	0	2	1
EE1601	Basic Electrical Engineering Lab	ESC	0	0	2	1
HS1601	English for Communication Lab	HSMC	0	0	2	1
HS1101	Communication Skills – 1		2	0	0	0
Total			<b>14</b>	<b>3</b>	<b>10</b>	<b>20</b>

Semester II						
Subject Code	Subject	SSN	L	T	P	C
MA1201	Engineering Mathematics-II	BSC	3	1	0	4
CY1001	Engineering Chemistry	BSC	3	1	0	4
ME1201	Engineering Mechanics	ESC	3	1	0	4
CS1001	Programming for Problem Solving	ESC	3	0	0	3
ME1001	Engineering Workshop	ESC	2	0	2	3
CY1601	Engineering Chemistry Lab	BSC	0	0	2	1.5
CS1601	Programming for Problem Solving Lab	ESC	0	0	4	2
HS1201	Communication Skills		2	0	0	0
Total			<b>16</b>	<b>3</b>	<b>8</b>	<b>21.5</b>

## B.Tech 2<sup>nd</sup> Year

Semester III						
Subject Code	Subject	SSN	L	T	P	C
MA2106	Engineering Mathematics-III	BSC	3	1	0	4
EC2104	Basic Electronics Engineering	ESC	3	0	0	3
ME2101	Strength of Materials	PCC	3	1	0	4
ME2102	Thermodynamics	PCC	3	1	0	4
ME2103	Materials Engineering	PCC	3	0	0	3
ME2701	Strength of Materials Lab	PCC	0	0	2	1
ME2702	Materials Engineering Lab	PCC	0	0	2	1
HS2101	Essence of Indian Traditional Knowledge		2	0	0	0
Total			17	3	4	20

Semester IV						
Subject Code	Subject	SSN	L	T	P	C
ME2201	Fluid Mechanics and Hydraulic Machines	PCC	3	1	0	4
ME2202	Instrumentation and Control	PCC	3	1	0	4
ME2203	Manufacturing Process	PCC	3	1	0	4
ME2204	Kinematics of Machinery	PCC	3	1	0	4
ME2205	Metrology and Machine Tools	PCC	3	0	0	3
ME2801	Fluid Mechanics & Hydraulic Machinery Lab	PCC	0	0	2	1
ME2802	Metrology and Instrumentation Lab	PCC	0	0	2	1
ME2803	Manufacturing Process Lab	PCC	0	0	2	1
BM0005	Constitution of India		2	0	0	0
Total			19	3	6	21

## B.Tech 3<sup>rd</sup> Year

Semester V						
Subject Code	Subject	SSN	L	T	P	C
ME3101	Applied Thermodynamics	PCC	3	1	0	4
ME3102	Dynamics of Machinery	PCC	3	1	0	4
ME3103	Design of Machine Members	PCC	3	1	0	4
ME31xx	Professional Elective-1	PEC	3	0	0	3
ME31xx	Professional Elective-2	PEC	3	0	0	3
ME3701	Applied Thermodynamics Lab	PCC	0	0	2	1
ME3702	Theory of Machines Lab	PCC	0	0	2	1
ME3703	Computer Aided Machine Drawing Practice	PCC	0	0	3	1.5
ME3001	Mini Project-I		0	0	2	1
Total			15	3	9	22.5

Semester VI						
Subject Code	Subject	SSN	L	T	P	C
ME3201	Heat Transfer	PCC	3	1	0	4
ME3202	Design of Transmission Elements	PCC	3	0	0	3
ME32xx	Professional Elective-3	PEC	3	0	0	3
ME32xx	Professional Elective-4	PEC	3	0	0	3
BM3001	Managerial Economics and Financial Analysis	HSMC	3	0	0	3
ME3801	Heat Transfer Lab	PCC	0	0	2	1
ME3802	Computer Aided Engineering Lab	PCC	0	0	3	1.5
BS3201	Environmental Science		2	0	0	0
ME3002	Project – II		0	0	6	3
Total			17	1	11	21.5

## B.Tech 4<sup>th</sup> Year

Semester VII						
Subject Code	Subject	SSN	L	T	P	C
ME4101	Automation in Manufacturing	PCC	3	0	0	3
ME4102	Industrial Engineering	HSMC	3	0	0	3
ME41xx	Professional Elective – 5	PEC	3	0	0	3
XXXXXX	Open Elective – 1	OEC	3	0	0	3
XXXXXX	Open Elective – 2	OEC	3	0	0	3
ME4701	Automation in Manufacturing Lab	PCC	0	0	2	1
ME4001	Project – III		0	0	10	5
Total			<b>15</b>	<b>0</b>	<b>12</b>	<b>21</b>

Semester VIII						
Subject Code	Subject	SSN	L	T	P	C
ME42xx	Professional Elective – 6	PEC	3	0	0	3
XXXXXX	Open Elective – 3	OEC	3	0	0	3
ME4801	Comprehensive Viva	PCC	0	0	0	1
ME4002	Project – IV		0	0	12	6
Total			<b>6</b>	<b>0</b>	<b>12</b>	<b>13</b>

## List of Professional Electives

Sl. No	Code	Subject	Semester	L-T-P	Credits
<b>3<sup>rd</sup> Year Sem1</b>					
1	ME3111	Internal Combustion Engines	V	3-0-0	3
2	ME3112	Non Traditional Manufacturing Process	V	3-0-0	3
3	ME3113	Power Plant Engineering	V	3-0-0	3
4	ME3114	Powder Metallurgy	V	3-0-0	3
5	ME3115	Mechanics of Composite Materials	V	3-0-0	3
6	ME3116	Advanced Mechanics of Solids	V	3-0-0	3
7	ME3117	Mechanical Behavior of Materials	V	3-0-0	3
8	ME3118	Gas Dynamics and Jet Propulsion	V	3-0-0	3
9	ME3119	Bio-Medical Engineering	V	3-0-0	3
<b>3<sup>rd</sup> Year Sem2</b>					
10	ME3211	Computer Aided Design	VI	3-0-0	3
11	ME3212	Theory of Elasticity	VI	3-0-0	3
12	ME3213	Production Planning & Control	VI	3-0-0	3
13	ME3214	Advanced Fluid Mechanics	VI	3-0-0	3
14	ME3215	Mechanical Vibrations	VI	3-0-0	3
15	ME3216	Micro and Nano Machining	VI	3-0-0	3
16	ME3217	Computational Fluid Dynamics	VI	3-0-0	3
17	ME3218	Conduction and Radiation Heat Transfer	VI	3-0-0	3
<b>4<sup>th</sup> Year Sem1</b>					
18	ME4111	Refrigeration and Air Conditioning	VII	3-0-0	3
19	ME4112	Tribology	VII	3-0-0	3
20	ME4113	Mechanics of Sheet Metal Forming	VII	3-0-0	3
21	ME4114	Convective Heat And Mass Transfer	VII	3-0-0	3
22	ME4115	Advanced Engineering Thermodynamics	VII	3-0-0	3
23	ME4116	Theory of Combustion and Emissions	VII	3-0-0	3
24	ME4117	Mechanical Handling Systems And Equipments	VII	3-0-0	3
25	ME4118	Phase Transformation and Heat Treatment of Materials	VII	3-0-0	3
26	ME4119	Technology of Surface Coating	VII	3-0-0	3
27	ME4120	Fatigue, Creep and Fracture	VII	3-0-0	3
<b>4<sup>th</sup> Year Sem2</b>					
28	ME4211	Welding Technology	VIII	3-0-0	3
29	ME4212	Laser Applications in Manufacturing	VIII	3-0-0	3
30	ME4213	Introduction to MEMS	VIII	3-0-0	3
31	ME4214	Experimental Stress Analysis	VIII	3-0-0	3
32	ME4215	Design Optimization	VIII	3-0-0	3

## List of Open Electives

Sl. No	Subject Code	Subject	L-T-P	Credits
1	ME4121	Product Design and Development	3-0-0	3
2	ME4122	Finite Element Analysis	3-0-0	3
3	ME4123	Automobile Engineering	3-0-0	3
4	ME4124	Rapid Manufacturing Processes	3-0-0	3
5	ME4221	Fundamentals of Mechatronics Systems	3-0-0	3
6	ME4222	Alternative Sources of Energy	3-0-0	3
7	ME4223	Non Destructive Testing	3-0-0	3

Semester Wise Credits								
Semester	HSMC(12)	BSC(25)	ESC(24)	PCC(48/54.5)	PEC(18)	OEC(18)	Project Work(15)	Total
I Semester	3	9	8					20
II Semester		9.5	12					21.5
III Semester		4	3	13				20
IV Semester				21				21
V Semester				15.5	6		1	22.5
VI Semester	3			9.5	6		3	21.5
VII Semester	3			4	3	6	5	21
VIII Semester				1	3	3	6	13
<b>Total(RGUKT)</b>	<b>9</b>	<b>22.5</b>	<b>23</b>	<b>64</b>	<b>18</b>	<b>9</b>	<b>15</b>	<b>160.5</b>
<b>%</b>	<b>6</b>	<b>14</b>	<b>14</b>	<b>40</b>	<b>11</b>	<b>6</b>	<b>9</b>	
<b>AICTE(Model Curriculum)</b>	<b>6</b>	<b>30</b>	<b>24</b>	<b>54.5</b>	<b>18</b>	<b>12</b>	<b>15</b>	<b>159.5</b>
<b>%</b>	<b>4</b>	<b>19</b>	<b>15</b>	<b>34</b>	<b>11</b>	<b>8</b>	<b>9</b>	