

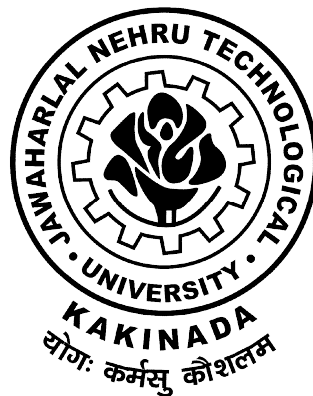
# **COURSE STRUCTURE**

## **MECHANICAL ENGINEERING**

**For**

**B.Tech., FOUR YEAR DEGREE COURSE**

(Applicable for the batches admitted from 2013-14)



**JAWAHARLAL NEHRU TECHNOLOGICAL  
UNIVERSITY KAKINADA**

**KAKINADA – 533003, ANDHRA PRADESH, INDIA.**

Mechanical Engineering Four Degree Course

**COURSE STRUCTURE**

**I Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	English – I	3+1	--	3
2	Mathematics - I	3+1	--	3
3	Engineering Chemistry	3+1	--	3
4	Engineering Mechanics	3+1	--	3
5	Computer Programming	3+1	--	3
6	Environmental Studies	3+1	--	3
7	Engineering Chemistry Laboratory	--	3	2
8	English - Communication Skills Lab - I	--	3	2
9	C Programming Lab	--	3	2
<b>Total Credits</b>				<b>24</b>

**I Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	English – II	3+1	--	3
2	Mathematics – II (Mathematical Methods)	3+1	--	3
3	Mathematics – III	3+1	--	3
4	Engineering Physics	3+1	--	3
5	Professional Ethics and Human Values	3+1	--	3
6	Engineering Drawing	3+1	--	3
7	English - Communication Skills Lab - II	--	3	2
8	Engineering Physics Lab	--	3	2
9	Engineering Physics – Virtual Labs - Assignments	--	2	--
10	Engg. Workshop & IT Workshop	--	3	2
<b>Total Credits</b>				<b>24</b>

**II Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	Metallurgy & Materials Science	3+1*	--	3
2	Mechanics of Solids	3+1*	--	3
3	Thermodynamics	3+1*	--	3
4	Managerial Economics & Financial	3+1*	--	3

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	Analysis			
5	Electrical & Electronics Engineering	3+1*	--	3
6	Computer aided Engineering Drawing Practice	3+1*	--	3
7	Electrical & Electronics Engg. Lab	--	3	2
8	Mechanics of Solids & Metallurgy lab	--	3	2
<b>Total Credits</b>				<b>22</b>

**II Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Kinematics of Machinery	3+1*	--	3
2	Thermal Engineering -I	3+1*	--	3
3	Production Technology	3+1*	--	3
4	Fluid Mechanics & Hydraulic machines	3+1*	--	3
5	Industrial Engineering Management	3+1*	--	3
6	Machine Drawing	3+1*	--	2
7	Fluid mechanics & Hydraulic machinery Lab	--	3	2
8	Production Technology Lab	--	3	2
<b>Total Credits</b>				<b>21</b>

**III Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	Dynamics of Machinery	3+1*		3
2	Metal Cutting & Machine Tools	3+1*		3
3	Design of Machine Members–I	3+1*		3
4	Instrumentation & Control Systems	3+1*		3
5	Thermal Engineering -II	3+1*		3
6	Metrology	3+1*		3
7	Metrology & Instrumentation Lab		3	2
8	Machine Tools Lab		3	2
9	IPR & Patents		3	2
<b>Total Credits</b>				<b>24</b>

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**III Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Operations Research	3+1*		3
2	Interactive Computer Graphics	3+1*		3
3	Design of Machine Members– II	3+1*		3
4	Robotics	3+1*		3
5	Heat Transfer	3+1*		3
6	Industrial Engineering Management	3+1*		3
7	<b>Departmental Elective – I</b>	3+1*		3
8	Heat Transfer Lab		3	2
<b>Total Credits</b>				<b>23</b>

**IV Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	Automobile Engineering	3+1*		3
2	CAD/CAM	3+1*		3
3	Finite Element Methods	3+1*		3
4	Unconventional Machining Processes	3+1*		3
5	<b>Open Elective</b>	3+1*		3
6	<b>Departmental Elective – II</b>	3+1*		3
7	Simulation Lab		3	2
8	Design/Fabrication Project		3	1
<b>Total Credits</b>				<b>21</b>

**IV Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Production Planning and Control	3+1*		3
2	Green Engineering Systems	3+1*		3
3	<b>Departmental Elective – III</b>	3+1*		3
4	<b>Departmental Elective – IV</b>	3+1*		3
5	Project Work			9
<b>Total Credits</b>				<b>21</b>

## Mechanical Engineering Four Degree Course

### **OPEN ELECTIVE:**

1. MEMS
2. Nanotechnology

### **Elective-I:**

1. Refrigeration & Air-conditioning
2. Computational Fluid Dynamics
3. Condition Monitoring
4. Rapid Prototyping

### **Elective-II:**

1. Material Characterization Techniques
2. Design for Manufacture
3. Automation in Manufacturing
4. Industrial Hydraulics & Pneumatics

### **Elective-III:**

1. Experimental Stress Analysis
2. Mechatronics
3. Advanced Materials
4. Power Plant Engineering

### **Elective-IV:**

1. Non Destructive Evaluation
2. Advanced Optimization Techniques
3. Gas Dynamics & Jet Propulsion
4. Quality and Reliability Engineering