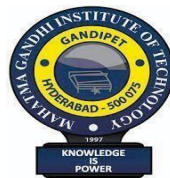


**B.Tech.**  
in  
**Mechanical Engineering (Mechatronics)**  
**Scheme of Instruction and Syllabi of I to VII Semesters**  
**WP24 Regulation for Working Professionals**  
**Applicable from AY 2024-25 Batch**



Department of Mechanical Engineering



**MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (AUTONOMOUS)**

Affiliated to JNTUH; Accredited by NBA and NAAC with 'A++' Grade;  
Kokapet (Village), Gandipet (Mandal), Hyderabad-500075, Telangana  
email: [principal@mgit.ac.in](mailto:principal@mgit.ac.in) Website: [www.mgit.ac.in](http://www.mgit.ac.in) Ph: 040-24193057 / 067

**MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)****Department of Mechanical Engineering****B.Tech. in Mechanical Engineering (Mechatronics) for Working Professionals****Course Structure (WP24 Regulations)****Applicable from AY 2024-25 Batch****I Semester**

<b>S.No</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P/D</b>	<b>Credits</b>
1	EC132PC	Electronic Devices and Circuits	3	1	0	4
2	MM131ES	Material Science and Metallurgy	3	0	0	3
3	ME101PC	Mechanics of Solids	3	0	0	3
4	MT101PC	Machine Drawing and Computer Aided Graphics	0	0	4	2
5	EC162PC	Electronic Devices and Circuits Lab	0	0	2	1
6	MM161ES	Metallurgy & Mechanics of Solids Lab	0	0	2	1
<b>Total Hours / Credits</b>			<b>9</b>	<b>1</b>	<b>8</b>	<b>14</b>

**II Semester**

<b>S.No</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P/D</b>	<b>Credits</b>
1	MA203BS	Probability, Statistics & Complex Variables	3	1	0	4
2	EE232ES	Electrical Engineering	3	0	0	3
3	ME201PC	Kinematics of Machinery	3	0	0	3
4	MT201PC	Thermal Science	3	1	0	4
5	EE262ES	Electrical Engineering Lab	0	0	2	1
6	MT251PC	Thermal Science Lab	0	0	2	1
7	MT252PC	Real-Time Research Project / Field-based Project	0	0	4	2
<b>Total Hours / Credits</b>			<b>12</b>	<b>2</b>	<b>8</b>	<b>18</b>

L: Lecture T: Tutorial D: Drawing P: Practical

**III Semester**

S.No	Course Code	Course Title	L	T	P/D	Credits
1	EC332PC	Switching Theory and Logic Design	3	1	0	4
2	ME301PC	Dynamics of Machinery	3	1	0	4
3	MT301PC	Fluid Mechanics and Heat Transfer	3	0	0	3
4		<b>Professional Elective – I</b>	3	0	0	3
5	ME351PC	Kinematics and Dynamics Lab	0	0	2	1
6	MT351PC	Fluid Mechanics and Heat Transfer Lab	0	0	2	1
<b>Total Hours / Credits</b>			<b>12</b>	<b>2</b>	<b>4</b>	<b>16</b>

**IV Semester**

S.No	Course Code	Course Title	L	T	P/D	Credits
1	MS401HS	Business Economics and Financial Analysis	3	0	0	3
2	MT401PC	Mechanical Measurements and Control Systems	3	0	0	3
3	MT402PC	Principles of Machine Design	3	0	0	3
4		<b>Professional Elective – II</b>	3	0	0	3
5	EN451HS	Advanced English Communication Skills Laboratory	0	0	2	1
6	MT451PC	Mechanical Measurements and Control Systems Lab	0	0	2	1
7	MT452PC	Industry Oriented Mini Project/ Internship	0	0	4	2
<b>Total Hours / Credits</b>			<b>12</b>	<b>0</b>	<b>8</b>	<b>16</b>

L: Lecture T: Tutorial D: Drawing P: Practical

**V Semester**

S.No	Course Code	Course Title	L	T	P/D	Credits
1	MT501PC	Motion Control Design	3	0	0	3
2	MT502PC	Manufacturing Process and MachineTools	3	0	0	3
3	MT503PC	Robotics and its Applications	3	0	0	3
4		<b>Professional Elective III</b>	3	0	0	3
5		<b>Open Elective – I</b>	3	0	0	3
6	MT551PC	Motion Control Design and CNC & Robotics Lab	0	0	2	1
7	MT552PC	Manufacturing Process and MachineTools Lab	0	0	2	1
<b>Total Hours / Credits</b>			<b>15</b>	<b>0</b>	<b>4</b>	<b>17</b>

**VI Semester**

S.No	Course Code	Course Title	L	T	P/D	Credits
1	ME601PC	CAD/CAM	3	0	0	3
2	ME602PC	Refrigeration and Air Conditioning	2	0	0	2
3		<b>Professional Elective IV</b>	3	0	0	3
4		<b>Open Elective - II</b>	3	0	0	3
5	ME651PC	CAD/CAM Lab	0	0	2	1
6	MT651PC	Project Stage I	0	0	6	3
<b>Total Hours / Credits</b>			<b>11</b>	<b>0</b>	<b>8</b>	<b>15</b>

**VII Semester**

S.No	Course Code	Course Title	L	T	P/D	Credits
1	EC731PC	Microprocessors and Microcontrollers	3	0	0	3
2		<b>Professional Elective - V</b>	3	0	0	3
3		<b>Professional Elective - VI</b>	3	0	0	3
4		<b>Open Elective - III</b>	3	0	0	3
5	EC761PC	Microprocessors and Microcontrollers Lab	0	0	2	1
6	MT751PC	Project Stage – II (Including Seminar)	0	0	22	11
<b>Total Hours / Credits</b>			<b>12</b>	<b>0</b>	<b>24</b>	<b>24</b>

L: Lecture T: Tutorial D: Drawing P: Practical

**PROFESSIONAL ELECTIVES OFFERED IN - WP24****Professional Elective – I**

ME311PE Finite Element Methods  
MT311PE IOT Sensors  
MT312PE Power Plant Engineering  
MT313PE Alternative Materials

**Professional Elective – II**

ME411PE Automobile Engineering  
MT411PE Drone Technology  
MT412PE Operations Research  
MT413PE Plant Engineering & Maintenance

**Professional Elective – III**

ME515PE Unconventional Machining Processes  
ME516PE Composite Materials  
MT514PE Concurrent Engineering  
MT515PE Product Design and Assembly Automation

**Professional Elective –IV**

ME619PE CNC Technology  
ME620PE Production Planning and Control  
MT616PE 3D Printing Technology  
MT617PE Mechanical Vibrations

**Professional Elective – V**

ME711PE Automation in Manufacturing  
ME712PE Additive Manufacturing Technology  
MT711PE Control Systems with DMX Technology  
MT712PE Reliability Engineering

**Professional Elective – VI**

ME713PE Digital Manufacturing & Industry 4.0  
ME714PE Electric and Hybrid Vehicles  
MT713PE MEMS Design  
MT714PE Animatronics

**List of Open Electives:****Open Elective: I**

MT521OE: Fundamentals of Electrical Vehicle Technology  
MT522OE: Fundamentals of Mechatronics

**Open Elective: II**

MT621OE: Principles of Entrepreneurship  
MT622OE: Fundamentals of MEMS Design

**Open Elective: III**

MT721OE: Fundamentals of Animatronics  
MT722OE: Fundamentals of Robotics

**Distribution of Theory and Laboratory Courses:**

Semester No.	No of Theory Courses	No of Laboratory Courses	RTRP / IOMP / PS-I / PS-II	Total Credits
Semester 1	4	2	-	14
Semester 2	4	2	RTRP	18
Semester 3	4	2	-	16
Semester 4	4	2	IOMP	16
Semester 5	5	2	-	17
Semester 6	4	1	PS-I	15
Semester 7	4	1	PS-II	24
<b>Total :</b>	<b>29</b>	<b>12</b>	<b>4</b>	<b>120</b>

**RTRP:** Real-Time Research Project / Field-based Project

**IOMP:** Industry Oriented Mini Project / Internship

**PS-I :** Project Stage I

**PS-II :** Project Stage II