



**PERIYAR MANIAMMAI INSTITUTE OF  
SCIENCE & TECHNOLOGY**  
Periyar Nagar, Vallam, Thanjavur - 613403  
Tamil Nadu, India.

**FACULTY OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF BIOTECHNOLOGY**

**M.Tech Nanotechnology**

**Curriculum (Semesters I to IV)**

**Regulations 2024**

**PERIYAR MANIAMMAI INSTITUTE OF SCIENCE & TECHNOLOGY**

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**M.Tech Nanotechnology**

**CURRICULUM - REGULATIONS 2024**

The category of courses and minimum credit requirements according to the UGC Guidelines on Curriculum and Credit Framework for Postgraduate (PG) degree programme is outlined below:

<b>Sl. No.</b>	<b>Course Category</b>	<b>Credit required</b>
1.	Foundation Courses	03
2.	Programme Core Courses	34
3.	Programme Elective Courses	12
4.	Online Courses / Open Elective Courses	03
5.	Employability Enhancement Courses (Internship/Field Visit/ Professional Practices/Project / Research/ Thesis / Dissertation)	20
6.	Value Added Courses / Value Addition Courses (IKS, Community Engagement, Research Methodology and IPR, Cyber security)	08
<b>Total</b>		<b>80</b>

**SEMESTER I**

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
<b>Theory</b>						
1	P24NT101	Introduction to Nanotechnology	3	0	0	3
2	P24NT102	Materials Science & Engineering	3	1	0	4
3	P24NT103	Nano Chemistry	3	1	0	4
4	P24NT104	Nanomaterials Fabrication Techniques	3	0	0	3
5	P24NT9XX	Professional Elective – I	3	0	0	3
6	P24VA009	Ancient Indian Medicinal System	3	0	0	3
<b>Practical</b>						
7	P24NT105	Simulation of Nanostructure & Nanomaterials Laboratory	0	0	4	2
8	P24NT106	Nanomaterials Fabrication Techniques Laboratory	0	0	4	2
<b>Total</b>			<b>18</b>	<b>2</b>	<b>8</b>	<b>24</b>

## SEMESTER II

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
<b>Theory</b>						
1	P24NT151	Nanomaterials Characterization Techniques	3	1	0	4
2	P24NT152	Computational Nanotechnology	3	1	0	4
3	P24NT153	Polymer Science	3	0	0	3
4	P24NT154	Nanocomposites	3	0	0	3
5	P24NT9XX	Professional Elective - II	3	0	0	3
6	P24NT9XX	Professional Elective - III	3	0	0	3
7	P24VA002	Community Engagement and Social Responsibility	1	0	2	2
<b>Practical</b>						
8	P24NT155	Nanomaterials Characterization Techniques Laboratory	0	0	2	1
9	P24NT156	Computational Nanotechnology Laboratory	0	0	2	1
<b>Total</b>			<b>19</b>	<b>2</b>	<b>6</b>	<b>24</b>

**SEMESTER III**

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
<b>Theory</b>						
1	P24NT201	Societal Implications of Nanotechnology	3	0	0	3
2	P24NT9XX	Professional Elective – IV	3	0	0	3
3	P24NT8XX	Online Course	3	0	0	3
4	P24RD001	Research Methodology	3	0	0	3
5	P24EM201	Internship	0	0	4	2
<b>Project</b>						
6	P24EM202	Project Phase - I	0	0	12	6
		<b>Total</b>	<b>12</b>	<b>0</b>	<b>16</b>	<b>20</b>

## SEMESTER IV

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
<b>Project</b>						
1	P24EM251	Project Phase - II	0	0	24	12
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>12</b>

The number of credits in each semester is summarized as follows:

Course	I	II	III	IV
M.Tech. Nanotechnology	24	24	20	12

### Semester-wise Credit Distribution (In All Categories of Courses)

Sl. No.	Category of Courses	Credits	I	II	III	IV
1.	Foundation Courses	<b>03</b>	03	-	-	-
2.	Programme Core Courses	<b>34</b>	15	16	03	-
3.	Programme Elective Courses	<b>12</b>	03	06	03	-
4.	Online Courses / Open Elective Courses	<b>03</b>	-	-	03	-
5.	Employability Enhancement Courses (Internship/Field Visit/ Professional Practices/Project / Research/ Thesis / Dissertation)	<b>20</b>	-	-	08	12
6.	Value Added Courses / Value Addition Courses (IKS, Community Engagement, Research Methodology and IPR, Cyber security)	<b>8</b>	03	02	03	-
	<b>Total Credits</b>	<b>80</b>	24	24	20	12

### Programme Elective – I

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24NT901	Nanomedicine	3	0	0	3
2	P24NT902	Nanotechnology in Energy Conversion and Storage	3	0	0	3
3	P24NT903	Nanofluid Dynamics	3	0	0	3

**Programme Elective – II**

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24NT951	Properties of Nanophase Materials	3	0	0	3
2	P24NT952	3D Printing	3	0	0	3
3	P24NT953	Green Manufacturing Technology	3	0	0	3

**Programme Elective – III**

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24NT954	Thin Film Science and Technology	3	0	0	3
2	P24NT955	Micro and Nano Emulsions	3	0	0	3
3	P24NT956	Nanoscale Integrated Computing	3	0	0	3

**Programme Elective – IV**

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24NT904	Micro/Nano Devices and Sensors	3	0	0	3
2	P24NT905	Graphene Nanotechnology	3	0	0	3
3	P24NT906	Environmental Biotechnology	3	0	0	3