

Department of Biotechnology
Faculty of Engineering and Technology
 Periyar Nagar, Vallam, Thanjavur - 613 403,
 Tamil Nadu, India
 Phone : +91-4362-264600 Fax : +91-4362-264660
 E-mail : headbio@pmu.edu Web : www.pmu.edu



**PERIYAR
 MANIAMMAI**
 INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University)
Established Under Sec. 3 of UGC Act, 1956 - NAAC Accredited
 think • innovate • transform

M.Tech Nanotechnology
Curriculum - Regulation 2023
Semester I

| AICTE E Abbr | Course Code | Course Title | Credits | | | | Hours | | | | |
|--------------------|----------------|---|-----------|----------|----------|-----------|-----------|----------|----------|----------|-----------|
| | | | L | T | P | Tot al | L | T | P | S. S | Tota l |
| PCC | YNT101 | Introduction to Nanotechnology | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| PCC | YNT102 | Nanomaterials Fabrication Techniques | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| PCC | YNT103 | Materials Science & Engineering | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| PEC | YNT104 * | Professional Elective Course I | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 4 |
| PEC | YNT105 * | Professional Elective Course II | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 4 |
| PCC-L | YNT106 | Simulation of Nanostructure & Nanomaterials Lab | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 0 | 4 |
| MC | YRM107 | Research Methodology and IPR | 2 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 3 |
| PCC-L | YNT107 | Nanomaterials Fabrication Techniques | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 0 | 4 |
| AICTE – Audit | YEGOE1 | English for Research Paper Writing | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| Total | | | 17 | 0 | 4 | 21 | 20 | 0 | 8 | 2 | 30 |

Total Credits – 21

SEMESTER II

| AICTE Abbr | Course Code | Course Title | Credits | | | | Hours | | | | |
|---------------|----------------|---|-----------|----------|----------|-----------|-----------|----------|-----------|----------|-----------|
| | | | L | T | P | Total | L | T | P | S.S | Total |
| PCC | YNT201 | Nanomaterials Characterization Techniques | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 4 |
| PCC | YNT202 | Computational Nanotechnology | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 4 |
| PCC | YNT203 | Nano composites | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 4 |
| PEC | YNT204 * | Professional Elective Course III | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 4 |
| PEC | YNT205 * | Professional Elective Course IV | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| PCC-L | YNT206 | Nanomaterials Characterization Techniques Lab | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 0 | 4 |
| PCC-L | YNT207 | Computational Nanotechnology Lab | 0 | 0 | 2 | 2 | 0 | 0 | 4 | 0 | 4 |
| PR | YNT208 | Mini Project | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 0 | 4 |
| MC Audit | YPSOE1 | Constitution of India | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| | | Total | 15 | 0 | 5 | 20 | 17 | 0 | 12 | 3 | 32 |

Total Credits – 20

SEMESTER III

| AICTE Abbr | Course Code | Course Title | Credits | | | | Hours | | | | |
|---------------|----------------|-----------------------------------|----------|----------|-----------|-----------|----------|----------|----------|----------|-----------|
| | | | L | T | P | Total | L | T | P | S.S | Total |
| PCC | YNT301 * | Professional Elective Course V | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| OE | | Open Elective | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 |
| PR | YNT303 | Dissertation Phase - I | 0 | 0 | 10 | 10 | 0 | 0 | 2 | 0 | 20 |
| | | Total | 6 | 0 | 10 | 16 | 6 | 0 | 2 | 0 | 26 |

Total Credits – 16

SEMESTER IV

| AICTE Abbr | Course code | Course Title | Credits | | | | Hours | | | | |
|---------------|----------------|-------------------------|----------|----------|----------|-----------|----------|----------|-----------|----------|-----------|
| | | | L | T | P | Total | L | T | P | S.S | Total |
| PR | YNT401 | Dissertation Phase - II | 0 | 0 | 0 | 16 | 0 | 0 | 32 | 0 | 32 |
| | | Total | 0 | 0 | 0 | 16 | 0 | 0 | 32 | 0 | 32 |

Total Credits - 16

Total Credits = Semester (I+II+III+IV=21+20+16+16) = 73

PROFESSIONAL ELECTIVE COURSES

| Course Code | Course Title | Semester | Credit |
|--|--|----------|--------|
| Professional Elective Course I-YNT104* | | | |
| YNT104A | Societal Implications of Nanotechnology | I | 3 |
| YNT104B | Nanochemistry | | 3 |
| YNT104C | Nanomedicine | | 3 |
| YNT104D | Nanotechnology in Energy Conversion and Storage | | 3 |
| YNT104E | Nanofluid Dynamics | | 3 |
| YNT104F | Cell and Molecular Biology | | 3 |
| Professional Elective Course II-YNT105* | | | |
| YNT105A | Nanoscale Magnetic Materials and Devices | I | 3 |
| YNT105B | Metallopolymer Nanocomposites | | 3 |

| | | | |
|---|---|-----|---|
| YNT105C | Properties of Nanophase Materials | | 3 |
| YNT105D | Nanotoxicology | | 3 |
| YNT105E | 3D Printing | | 3 |
| YNT105F | Green Manufacturing Technology | | 3 |
| Professional Elective Course III-YNT204* | | | |
| YNT204A | Polymer Science | II | 3 |
| YNT204B | Advanced Crystal Growth Techniques | | 3 |
| YNT204C | Carbon Nanotube Electronics and Devices | | 3 |
| YNT204D | Nanoscale Integrated Computing | | 3 |
| YNT204E | Thin Film Science and Technology | | 3 |
| YNT204F | Micro and Nano Emulsions | | 3 |
| Professional Elective Course IV-YNT205* | | | |
| YNT205A | Micro/Nano Devices and Sensors | II | 3 |
| YNT205B | Graphene Nanotechnology | | 3 |
| YNT205C | Carbon Nanotube | | 3 |
| YNT205D | Quantum Dot | | 3 |
| YNT205E | Polymeric carrier | | 3 |
| YNT205F | Lithographic techniques | | 3 |
| Professional Elective Course V-YNT301* | | | |
| YNT301A | Nanotechnology Business Applications and Commercialization | III | 3 |
| YNT301B | Nano – CMOS Circuit and Physical Design | | 3 |
| YNT301C | Nanomanipulation & Assembly | | 3 |
| YNT301D | Nanophotonics for Biotechnology and Nanomedicine | | 3 |
| YNT301E | Nano-Spintronics | | 3 |
| YNT301F | Nanomaterials and photocatalytic nanoparticles for water/air detoxification | | 3 |

OPEN ELECTIVE COURSES

| Sl.No | Course Code | Course Name | Semester | Credits |
|-------|-------------|---|----------|---------|
| 1. | | Business Analytics | III | 3 |
| 2. | | Industrial Safety | III | 3 |
| 3. | | Operations Research | III | 3 |
| 4. | | Cost Management of Engineering Projects | III | 3 |

