

**M.TECH – NANOTECHNOLOGY  
TWO YEAR FULL TIME CURRICULUM 2009  
SEMESTER I**

| Code No.         | Course Title                                   | L | T | P | C |
|------------------|------------------------------------------------|---|---|---|---|
| <b>Theory</b>    |                                                |   |   |   |   |
| YNT101           | <b>Fundamentals of Nanotechnology</b>          | 4 | 1 | 0 | 4 |
| YNT102           | Quantum Mechanical Phenomena in nanostructures | 3 | 1 | 0 | 4 |
| YNT103           | Properties of Nanophase Materials              | 3 | 1 | 0 | 4 |
| YNT104           | Processing and Fabrication of Nanostructures   | 3 | 1 | 0 | 4 |
| YNT105*          | Elective – I                                   | 3 | 1 | 0 | 3 |
| YNT106*          | Elective – II                                  | 3 | 1 | 0 | 3 |
| <b>Practical</b> |                                                |   |   |   |   |
| YNT107           | Computer Simulation Lab – I                    | 0 | 0 | 3 | 3 |
| YNT108           | Nanotechnology Lab – I                         | 0 | 0 | 3 | 3 |

**Total Hours: 31**

**Total Credits:28**

**SEMESTER II**

| Code No.         | Course Title                          | L | T | P | C |
|------------------|---------------------------------------|---|---|---|---|
| <b>Theory</b>    |                                       |   |   |   |   |
| YNT201           | Characterisation of Nanomaterials     | 4 | 0 | 0 | 4 |
| YNT202           | Bioelectronic Devices                 | 4 | 0 | 0 | 4 |
| YNT203           | Nanobiotechnology                     | 4 | 0 | 0 | 4 |
| YNT204           | Societal dimensions of nanotechnology | 4 | 0 | 0 | 4 |
| YNT205*          | Elective – III                        | 4 | 0 | 0 | 3 |
| YNT206*          | Elective – IV                         | 4 | 0 | 0 | 3 |
| <b>Practical</b> |                                       |   |   |   |   |
| YNT207           | Embedded system Lab                   | 0 | 0 | 3 | 3 |
| YNT208           | Nanotechnology Lab – II               | 0 | 0 | 3 | 3 |

**Total Hours:31**

**Total Credits:28**

## LIST OF ELECTIVES

| Code No.       | Course Title                                                     | L | T | P | M |
|----------------|------------------------------------------------------------------|---|---|---|---|
| <b>YNT105*</b> | <b>ELECTIVE I</b>                                                |   |   |   |   |
| YNT105A        | Molecular Biology                                                | 3 | 0 | 0 | 3 |
| YNT105B        | Mathematical Modelling                                           | 3 | 0 | 0 | 3 |
| YNT105C        | Basic of Computer Programming and Computation numerical analysis | 3 | 0 | 0 | 3 |
| YNT105D        | Nanomanipulation & Assembly                                      | 3 | 0 | 0 | 3 |
| <b>YNT106*</b> | <b>ELECTIVE II</b>                                               |   |   |   |   |
| YNT106A        | Bio-Physics                                                      | 3 | 0 | 0 | 3 |
| YNT106B        | Molecular Nano electronics                                       | 3 | 0 | 0 | 3 |
| YNT106C        | Biosensors & Biomarkers                                          | 3 | 0 | 0 | 3 |
| YNT106D        | Nano particles, Micro-organisms & Biomaterial Hybrid Systems     | 3 | 0 | 0 | 3 |
| <b>YNT205*</b> | <b>ELECTIVE III</b>                                              |   |   |   |   |
| YNT205A        | MEMS to NEMS                                                     | 3 | 0 | 0 | 3 |
| YNT205B        | Applications of Nanomaterials in Energy Conversion Process       | 3 | 0 | 0 | 3 |
| YNT205C        | Semiconductor Nanoclusters and Nanoparticles                     | 3 | 0 | 0 | 3 |
| YNT205D        | Self-assembling Nanostructured molecular material and devices    | 3 | 0 | 0 | 3 |
| <b>YNT206*</b> | <b>ELECTIVE IV</b>                                               |   |   |   |   |
| YNT206A        | NANOFLUID DYNAMICS                                               | 3 | 0 | 0 | 3 |
| YNT206B        | FUNCTIONAL STRUCTURES & MECHANICS (CARBON NANOTUBES)             | 3 | 0 | 0 | 3 |
| YNT206C        | NANOPHOTONICS                                                    | 3 | 0 | 0 | 3 |
| YNT206D        | INTRODUCTION TO BIOMEDICAL OPTICS                                | 3 | 0 | 0 | 3 |

### SEMESTER – III

| Code No.         | Course Title           | L | T | P  | M  |
|------------------|------------------------|---|---|----|----|
| <b>Practical</b> |                        |   |   |    |    |
| YNT301           | Project Work (Phase I) | 0 | 0 | 25 | 10 |

**Total Hours:25**

**Total Credits:10**

### SEMESTER – IV

| Code No. | Course Title            | L | T | P  | M  |
|----------|-------------------------|---|---|----|----|
| YNT401   | Project Work (Phase II) | 0 | 0 | 25 | 12 |

**Total Hours:25**

**Total Credits:12**

***Over all Credits: 78***

**L → LECTURE HOURS**

**T → TUTORIAL HOURS**

**P → PRACTICAL HOURS**

**C → CREDITS HOURS**