## BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
## NEW COURSE STRUCTURE - To be effective from academic session 2018- 19
## Based on CBCS & OBE model
## Recommended scheme of study for M.Tech (Information Security)

| SEMESTER / Session of Study (Recommended) | Course Level | Category of Course | Course Code | Courses | Mode of delivery & credits *L-Lecture; T-Tutorial;P-Practicals* | | | Total Credits *C-Credits* |
|---|---|---|---|---|---|---|---|---|
| | | | | | L(Periods/week) | T(Periods/week) | P (Periods/week) | C |
| **THEORY** | | | | | | | | |
| **FIRST / Monsoon** | Fifth | Programme Core (PC) | CS501 | Mathematical Foundations of Computer Science | 3 | 0 | 0 | 3 |
| | | | CS502 | Advanced Data Structures | 3 | 0 | 0 | 3 |
| | | | IT502 | Fundamentals of Information Security | 3 | 0 | 0 | 3 |
| | | Programme Elective (PE) | ** | PE 1 | 3 | 0 | 0 | 3 |
| | | | ** | PE 3 | 3 | 0 | 0 | 3 |
| | | Open Elective (OE) | * | OE 1 | 3 | 0 | 0 | 3 |
| **LABORATORIES** | | | | | | | | |
| | Fifth | Programme Core (PC) | CS503 | Advanced Data Structures Lab | 0 | 0 | 4 | 2 |
| | | Programme Elective (PE) | ** | PE LAB 1 | 0 | 0 | 4 | 2 |
| | | | ** | PE LAB 3 | 0 | 0 | 4 | 2 |
| **TOTAL** | | | | | | | | **24** |
| **THEORY** | | | | | | | | |
| **SECOND/ Spring** | Fifth | Programme Core (PC) | CS509 | Advanced Computer Algorithm | 3 | 0 | 0 | 3 |
| | | | IT514 | Cryptography | 3 | 0 | 0 | 3 |
| | | | IT515 | Digital Forensics | 3 | 0 | 0 | 3 |
| | | | CS602 | Data Compression | 3 | 0 | 0 | 3 |
| | | Programme Elective (PE) | ** | PE 2 | 3 | 0 | 0 | 3 |
| | | Open Elective (OE) | * | OE 2 | 3 | 0 | 0 | 3 |
| **LABORATORIES** | | | | | | | | |
| | Fifth | Programme Core (PC) | CS510 | Advanced Computer Algorithm Lab | 0 | 0 | 4 | 2 |
| | | Programme Elective (PE) | ** | PE LAB 2 | 0 | 0 | 4 | 2 |
| | | | | | | | | 22 |
| **TOTAL FOR FIFTH LEVEL** | | | | | | | | **46** |
| **THEORY** | | | | | | | | |
| **THIRD /Monsoon** | Sixth | Programme Core (PC) | CS600 | Thesis Part I | | | | 8 |
| **LABORATORIES** | | | | | | | | |
| **TOTAL** | | | | | | | | **8** |
| **FOURTH/ Spring** | Sixth | Programme Core (PC) | CS650 | Thesis Part II | | | | 16 |
| **TOTAL** | | | | | | | | **16** |
| **TOTAL FOR SIXTH LEVEL** | | | | | | | | **24** |
| **GRAND TOTAL FOR M.TECH PROGRAMME (46+24)** | | | | | | | | **70** |

# Programme Elective List for M.Tech (Information Security)

| SEMESTER / Session of Study (Recommended) | Course Level | Category of Course | Course Code | Courses | Mode of delivery & credits *L-Lecture; T-Tutorial;P-Practicals* | | | Total Credits *C-Credits* |
|---|---|---|---|---|---|---|---|---|
| | | | | | L (*Periods/week*) | T (*Periods/week*) | P (*Periods/week*) | C |
| FIRST / Monsoon | 5 | PE 1 | IT504 | Applied Cryptography | 3 | 0 | 0 | 3 |
| | 5 | | IT505 | Mobile and Wireless security | 3 | 0 | 0 | 3 |
| | 5 | | IT506 | Multimedia Security | 3 | 0 | 0 | 3 |
| | | | | **LABORATORIES** | | | | |
| | 5 | PE LAB 1 | IT509 | Matlab Programming | 0 | 0 | 4 | 2 |
| | 5 | | IT510 | Java Programming | 0 | 0 | 4 | 2 |
| | | | | | | | | |
| SECOND/ Spring | 5 | PE 2 | IT520 | Network Security | 3 | 0 | 0 | 3 |
| | 5 | | IT516 | Data Mining and Data Analysis | 3 | 0 | 0 | 3 |
| | 5 | | IT518 | Internet of Things(IoT) | 3 | 0 | 0 | 3 |
| | | | | **LABORATORIES** | | | | |
| | 5 | PE LAB 2 | IT517 | Data Mining and Data Analysis Lab | 0 | 0 | 4 | 2 |
| | 5 | | IT519 | Internet of Things(IoT) Lab | 0 | 0 | 4 | 2 |
| | 5 | | IT511 | R Programming | 0 | 0 | 4 | 2 |
| | | | | | | | | |
| THIRD / Monsoon | 5 | PE 3 | IT507 | Data Communication and Computer Networks | 3 | 0 | 0 | 3 |
| | 6 | | IT601 | Cloud Security | 3 | 0 | 0 | 3 |
| | 6 | | IT602 | Cyber Security | 3 | 0 | 0 | 3 |
| | | | | **LABORATORIES** | | | | |
| | 5 | PE LAB 3 | IT521 | Data Communication and Computer Networks Lab | 0 | 0 | 4 | 2 |
| | 6 | | IT603 | Python Programming | 0 | 0 | 4 | 2 |
| | 6 | | IT604 | Web App Development Lab | 0 | 0 | 4 | 2 |

# Open Elective List for M. Tech Program

| SEMESTER / Session of Study (Recommended) | Course Level | Category of Course | Course Code | Courses | Mode of delivery & credits *L-Lecture; T-Tutorial;P-Practicals* | | | Total Credits *C-Credits* |
|---|---|---|---|---|---|---|---|---|
| | | | | | L (*Periods/week*) | T (*Periods/week*) | P (*Periods/week*) | C |
| FIRST / Monsoon | 5 | OE 1 | CS514 | Software Metrics | 3 | 0 | 0 | 3 |
| | 5 | | CS522 | Pattern Recognition and Application | 3 | 0 | 0 | 3 |
| | 5 | | IT518 | Internet of Things | 3 | 0 | 0 | 3 |
| | | | IT570 | Basics of Python Programming | 0 | 1 | 4 | 3 |
| | 5 | | IT522 | Cyber Security and Digital Forensics | 3 | 0 | 0 | 3 |
| | | | | | | | | |
| SECOND/ Spring | 5 | OE 2 | IT523 | Biometric Security | 3 | 0 | 0 | 3 |
| | 5 | | IT504 | Applied Cryptography | 3 | 0 | 0 | 3 |
| | 5 | | IT524 | Image Processing Techniques | 3 | 0 | 0 | 3 |
| | 5 | | CS524 | Soft Computing | 3 | 0 | 0 | 3 |
| | | | IT571 | Introduction to R Programming | 0 | 1 | 4 | 3 |
| | 5 | | CS512 | Artificial Intelligence | 3 | 0 | 0 | 3 |
| | 5 | | IT516 | Data Mining and Data Analysis | 3 | 0 | 0 | 3 |