



Department of Computer Science & Engineering Birla Institute of Technology, Mesra, Ranchi - 835215 (India)

Master of Computer Application

PROGRAMME COURSE STRUCTURE (ALL SEMESTERS)

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEW COURSE STRUCTURE – Proposed from Monsoon 2020
Based on CBCS & OBE model
Recommended scheme of study for MCA Programme

| Semester | Course Level | Category of Course | Course Code | Courses | Mode of delivery & credits | | | Total Credits |
|-----------------------|---------------|------------------------------|-------------|---------------------------------------|----------------------------|-------------------|-------------------|---------------|
| | | | | | L (periods/ week) | T (periods/ week) | P (periods/ week) | |
| Theory | | | | | | | | |
| First/ Monsoon | FOURTH | Programme Core (PC) | CA403 | Computer Organization & Architecture | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA405 | Data Structures and Algorithms | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA407 | Database Design Concepts | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA409 | Object Oriented Design using Java | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA411 | Modern Operating Systems | 3 | 0 | 0 | 3 |
| | FIRST | Humanities & Social Sciences | MT123 | Business Communication | 2 | 0 | 2 | 3 |
| Laboratories | | | | | | | | |
| | FOURTH | Programme Core (PC) | CA406 | Data Structures and Algorithms Lab | 0 | 0 | 3 | 1.5 |
| | FOURTH | Programme Core (PC) | CA408 | Database Design Concepts Lab | 0 | 0 | 3 | 1.5 |
| | FOURTH | Programme Core (PC) | CA410 | Object Oriented Design using Java Lab | 0 | 0 | 3 | 1.5 |
| | | Total | | | | | | |

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|-----------------------|--------------|--------------------|-------------|---|----------------------------|-------------------|-------------------|---------------|
| | | | | | L (periods/ week) | T (periods/ week) | P (periods/ week) | |
| Theory | | | | | | | | |
| Second/ Spring | FIRST | HSS | MT114 | Fundamentals of management & Organization Behaviour | 3 | 0 | 0 | 3 |

| | | | | | | | | |
|---------------------|---------------|---------------------|-------|--|---|---|---|-------------|
| | FOURTH | Programme Core (PC) | CA413 | Data Communication & Computer Networks | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA415 | Software Engineering Principles | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA417 | Theory of Computation | 3 | 0 | 0 | 3 |
| | FOURTH | Programme Core (PC) | CA419 | Analysis of Algorithms | 3 | 0 | 0 | 3 |
| | FOURTH | Program Elective | - | Program Elective - I | 3 | 0 | 0 | 3 |
| Laboratories | | | | | | | | |
| | FOURTH | Programme Core (PC) | CA414 | DCCN Lab | 0 | 0 | 3 | 1.5 |
| | FOURTH | Programme Core (PC) | CA416 | Software Engineering Lab | 0 | 0 | 3 | 1.5 |
| | FOURTH | Programme Core (PC) | CA422 | IT Tools & Techniques Lab | 0 | 0 | 3 | 1.5 |
| Total | | | | | | | | 22.5 |

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|-----------------------|--------------|------------------------------------|-------------|--|----------------------------|------------------|------------------|---------------|
| | | | | | L (periods/week) | T (periods/week) | P (periods/week) | |
| Theory | | | | | | | | |
| Third/ Monsoon | FIFTH | Programme Core (PC) | CA511 | Basics of Machine Learning | 3 | 0 | 0 | 3 |
| | FIFTH | Programme Core (PC) | CA513 | Compiler Design | 3 | 1 | 0 | 4 |
| | FIFTH | Programme Core (PC) | CA515 | Soft Computing | 3 | 0 | 0 | 3 |
| | FIFTH | SIT / Soft Skill Course / Extra OE | CA550 | Small Industrial Training/ Small Project /MOOC | | | | 6 |
| | FIFTH | Program Elective | - | Program Elective - II | 3 | 0 | 0 | 3 |
| | FIFTH | Program Elective | - | Program Elective - III | 3 | 0 | 0 | 3 |
| Laboratories | | | | | | | | |
| | FIFTH | Programme Core (PC) | CA512 | Basics of Machine Learning Lab | 0 | 0 | 3 | 1.5 |
| | FIFTH | Programme Core (PC) | CA514 | Compiler Design Lab | 0 | 0 | 3 | 1.5 |
| Total | | | | | | | | 25 |

| Semester | Course Level | Category of Course | Course Code | Courses | Mode of delivery & credits | | | Total Credits |
|-----------------------|--------------|--------------------|-------------|---------|----------------------------|------------------|------------------|---------------|
| | | | | | L (periods/week) | T (periods/week) | P (periods/week) | |
| Project | | | | | | | | |
| Fourth/ Spring | FIFTH | Project | CA590 | Project | | | | 20 |
| Total | | | | | | | | 20 |

Total Credits: 90

| List of Program Electives | | | | | | | |
|---------------------------|-----|----------------|---------------------------------|---|---|---|--------|
| PE/ LEVEL | | Course Code | Name of the PE courses | L | T | P | Credit |
| 4 | PE1 | CA431 | Distributed Databases Concepts | 3 | 0 | 0 | 3 |
| 4 | | CA433 | Intrusion Detection System | 3 | 0 | 0 | 3 |
| 4 | | CA435 | Modern Artificial Intelligence | 3 | 0 | 0 | 3 |
| 4 | | CA437 | Information Retrieval | 3 | 0 | 0 | 3 |
| 4 | | CA439 | Image Processing | 3 | 0 | 0 | 3 |
| 4 | | CA441 | Data Mining Techniques | 3 | 0 | 0 | 3 |
| 5 | PE2 | CA519 | Mobile Computing | 3 | 0 | 0 | 3 |
| 5 | | CA521 | Cyber Security | 3 | 0 | 0 | 3 |
| 5 | | CA523 | Cloud Computing | 3 | 0 | 0 | 3 |
| 5 | | CA525 | Deep Learning | 3 | 0 | 0 | 3 |
| 5 | | CA527 | Computer Vision | 3 | 0 | 0 | 3 |
| 5 | | CA529 | Network Security & Cryptography | 3 | 0 | 0 | 3 |
| 5 | PE3 | CA539 | Parallel Computing | 3 | 0 | 0 | 3 |
| 5 | | CA541 | Digital Forensic | 3 | 0 | 0 | 3 |
| 5 | | CA543 | Internet of Things (IOT) | 3 | 0 | 0 | 3 |
| 5 | | CA545 | Natural Language Processing | 3 | 0 | 0 | 3 |
| 5 | | CA547 | Big Data Analytics | 3 | 0 | 0 | 3 |
| 5 | | CA549 | Block Chain Technology | 3 | 0 | 0 | 3 |