

# Sidho-Kanho-Birsha University, Purulia

## Department of Computer Science

w.e.f Academic Session 2020-21

### Curriculum Structure

#### Semester I

- I. Principle Programming Languages (Procedural, Functional, Logic, Object Oriented)
- II. Advanced Operating System (Network, Distributed, Real-time, Cloud)
- III. Design and Analysis of Algorithms
- IV. Mathematical Foundations (Statistical techniques, Statistical inferences, Linear algebra, Tensor, Optimization techniques)
- V. Operating system Lab (Network OS, Multi-thread Programming, Open Source Cloud)
- VI. Programming & Algorithm Analysis Lab (Java, Python, Functional Programming)

	Paper Code	Paper Title	Credits	Marks
<b>SEM-I</b>	MCOSCCT101	Programming Languages	4	40+10
	MCOSCCT102	Advance Operating Systems	4	40+10
	MCOSCCT103	Design and Analysis of Algorithms	4	40+10
	MCOSCCT104	Mathematical Foundations	4	40+10
	MCOSCCS105	Operating System Lab	4	50
	MCOSCCS106	Programming & Algorithm Analysis Lab	4	50

**(Internal Assessment: 10 Marks, Term End Exam: 40 Marks)**

#### Semester II

- I. Formal Languages & Automata Theory
- II. Advanced DBMS (Distributed, Data warehouse)
- III. Advanced Computer Networks (Fog, Cloud, Edge, Sensor, Wireless)
- IV. Information Security (Coding theory, Cryptography, Crypto analysis)
- V. Network Lab
- VI. Database Lab

	<b>Paper Code</b>	<b>Paper Title</b>	<b>Credits</b>	<b>Marks</b>
<b>SEM-II</b>	MCOSCCT201	Formal Languages and Automata Theory	4	40+10
	MCOSCCT202	Advanced Database Management	4	40+10
	MCOSCCT203	Advanced Computer Networks	4	40+10
	MCOSCCT204	Information Security and Coding Theory	4	40+10
	MCOSCCS205	Network Lab	4	50
	MCOSCCS206	Database Lab	4	50

**Semester III**

- I. Compiler Design
- II. Artificial Intelligence
- III. Open Elective
- IV. Major Elective-I
- V. Artificial Intelligence Lab
- VI. Compiler Design Lab

	<b>Paper Code</b>	<b>Paper Title</b>	<b>Credits</b>	<b>Marks</b>
<b>SEM-III</b>	MCOSCCT301	Compiler Design	4	40+10
	MCOSCCT302	Artificial Intelligence	4	40+10
	MCOSOET303	Open Elective	4	40+10
	MCOSMET3204	Major Elective-I	4	40+10
	MCOSCCS305	Artificial Intelligence Lab	4	50
	MCOSCCS306	Compiler Design Lab	4	50

### Semester IV

- I. Data Analytics (Statistical analysis, Optimization, Neural network, Regression, Mining, Machine learning)
- II. Advanced Software Design (Object oriented, UML, Testing, Verification, Quality analysis)
- III. Major Elective – II
- IV. Major Elective – III
- V. Add on Course--- Data Analytics/Advanced Software Design
- VI. Major Project
- VII. Seminar and Grand Viva

	<b>Paper Code</b>	<b>Paper Title</b>	<b>Credits</b>	<b>Marks</b>
<b>SEM-IV</b>	MCOSCCT401	Data Analytics	4	40+10
	MCOSCCT402	Data Analytics/ Advanced Software Design	4	40+10
	MCOSMET403	Major Elective – II	4	40+10
	MCOSMET404	Major Elective – III	4	40+10
	MCOSCCS405	Major Project	4	50
	MCOSCCS406	Seminar and Grand Viva	4	50

#### **MAJOR ELECTIVES:**

##### **Group-I: Data Science**

Machine Learning, Deep Learning, Computer Vision & Pattern Recognition, Business Intelligence, Soft Computing

##### **Group-II: Cyber Security**

Network Security, Digital Forensic, Post Quantum Cryptography, Hardware Security, Cyber Law

##### **Group-III: Distributed System & Resources**

Cloud Computing, IOT, Service Oriented Computing, Semantic Web, Multimedia Systems & Database