DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MOOC FOR MINORS – BTECH 2023 SCHEME

BASKET I   SOFTWARE ENGINEERING

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Programming in Java		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL2MA OBJECT ORIENTED PROGRAMMING* offered in *Semester 3*
2	Object Oriented System Development using UML, Java and Patterns		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL2MA OBJECT ORIENTED PROGRAMMING* offered in *Semester 3*
3	Fundamentals of Object Oriented Programming		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Roorkee	Replacing *23CSL2MA OBJECT ORIENTED PROGRAMMING* offered in *Semester 3*
4	Software Engineering		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3MA CONCEPTS IN SOFTWARE ENGINEERING* offered in *Semester 5*
5	Software Testing		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIIT Bangalore	Replacing *23CSL3MB INTRODUCTION TO SOFTWARE TESTING* offered in *Semester 6*

BASKET II   MACHINE LEARNING

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Essential Mathematics for Machine Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Roorkee	Replacing the course *23CSL2MC MATHEMATICS FOR MACHINE LEARNING* offered in *Semester 4*.
2	Essential Mathematics for Machine Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Ropar	Replacing the course *23CSL2MC MATHEMATICS FOR MACHINE LEARNING* offered in *Semester 4*.
2	Linear Algebra in AI and ML		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing the course *23CSL2MC MATHEMATICS FOR MACHINE LEARNING* offered in *Semester 4*.
3	Machine Learning for Engineering and Science Applications		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CSL2MD CONCEPTS IN MACHINE LEARNING* offered in *Semester 5*
4	Introduction to Machine Learning		MOOC	8 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL2MD CONCEPTS IN MACHINE LEARNING* offered in *Semester 5*
5	Introduction to Machine Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CSL2MD CONCEPTS IN MACHINE LEARNING* offered in *Semester 5*
6	Deep Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3MC CONCEPTS IN DEEP LEARNING* offered in *Semester 6*

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
7	Deep Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Ropar	Replacing *23CSL3MC CONCEPTS IN DEEP LEARNING* offered in *Semester 6*
8	Optimization for machine learning: Theory and Implementation		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	

BASKET III   NETWORKING

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Introduction to Computer Networks and Internet protocols		MOOC	15 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Gujarat University Ahmedabad	Replacing *23CSL2MF INTRODUCTION TO COMPUTER NETWORKS* offered in *Semester 4*
2	Advanced Computer Networks		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Gandhinagar	Replacing *23CSL2MF INTRODUCTION TO COMPUTER NETWORKS* offered in *Semester 4*
3	Cloud Computing		MOOC	12 weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
4	Computer Networks and Internet Protocol		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
5	Introduction to Internet of Things		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3MF WIRELESS NETWORKS AND IOT APPLICATIONS* offered in *Semester 6*
6	Introduction To Industry 4.0 And Industrial Internet of Things		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *CS0M30F WIRELESS NETWORKS AND IOT APPLICATIONS* offered in *Semester 6*

BASKET IV   DATA SCIENCE

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Essentials Of Data Science With R Software - 1: Probability And Statistical Inference		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kanpur	
2	Natural Language Processing		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3MG NATURAL LANGUAGE PROCESSING* offered in *Semester 5*

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
3	Deep Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3MH DEEP LEARNING* offered in *Semester 6*
4	Deep Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Ropar	Replacing *23CSL3MH DEEP LEARNING* offered in *Semester 6*
5	Optimization for machine learning: Theory and Implementation		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	

BASKET V   NETWORK SECURITY

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Cyber Security Tools Techniques and Counter Measures		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Dr. Babasaheb Ambedkar Open University, Ahmedabad, Gujrat	Replacing *23CSL2MJ CYBER SECURITY* offered in *Semester 4*

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
2	Introduction to Cyber Security		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Uttarakhand Open University, Haldwani	Replacing *23CSL2MJ CYBER SECURITY* offered in *Semester 4*
3	Cyber Security and Privacy		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CSL2MJ CYBER SECURITY* offered in *Semester 4*
4	Blockchain and its Applications		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3MI INTRODUCTION TO BLOCKCHAIN TECHNOLOGIES* offered in *Semester 5*
5	Introduction To Internet of Things		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
6	Cryptography and Network Security		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
7	Secure Computation Part 1		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIIT Bangalore	

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
8	Information Security and Cyber Forensics		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Devi Ahilya Vishwavidyalaya, Indore	

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MOOC FOR HONOURS - 2023 SCHEME BTECH CSE

BASKET I   **SECURITY IN COMPUTING**

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	A basic course in Number Theory		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Bombay	Replacing *23CSL2HB NUMBER THEORY* offered in *Semester 4*
2	Cryptography and Network Security		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CSL3HA CRYPTOGRAPHIC ALGORITHMS* offered in *Semester 5*
3	Cyber Security and Privacy		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CSL3HD NETWORK SECURITY* offered in *Semester 6*
4	Introduction to Cyber Security		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Uttarakhand Open University, Haldwani	Replacing *23CSL3HD NETWORK SECURITY* offered in *Semester 6*

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
5	Privacy and Security in Online Social Media		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIIT Hyderabad	
6	Ethical Hacking		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
7	Secure Computation Part 1		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIIT Bangalore	Replacing *23CSL4HA CYBER FORENSICS* offered in *Semester 7*
8	Information Security and Cyber Forensics		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Devi Ahilya Vishwavidyalaya, Indore	Replacing *23CSL4HA CYBER FORENSICS* offered in *Semester 7*

BASKET II   MACHINE LEARNING

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Essential Mathematics for Machine Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Roorkee	Replacing **23CSL2HD** *COMPUTATIONAL FUNDAMENTALS FOR MACHINE LEARNING* offered in *Semester 4*
2	Deep Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing **23CSL3HC** *NEURAL NETWORKS AND DEEP LEARNING* offered in *Semester 5*
3	Deep Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Ropar	Replacing **23CSL3HC** *NEURAL NETWORKS AND DEEP LEARNING* offered in *Semester 5*
4	Machine Learning and Deep Learning - Fundamentals and Applications		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Guwahati	Replacing *23CSL3HD ADVANCED TOPICS IN MACHINE LEARNING* offered in *Semester 6*
5	Optimization for machine learning: Theory and Implementation		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
6	Reinforcement Learning		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
7	Introduction to Large Language Models (LLMs)	CSMC01D	MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Delhi/IIT Bombay	

BASKET III   FORMAL METHODS

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Model Checking		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Chennai Mathematical Institute	Replacing *23CSL3HE PRINCIPLES OF MODEL OF CHECKING* offered in *Semester 5*

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MOOC FOR HONOURS - 2023 SCHEME BTECH CSE [ARTIFICIAL INTELLIGENCE]

BASKET I   **SECURITY IN COMPUTING**

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	A basic course in Number Theory		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Bombay	Replacing *23CSL2HA NUMBER THEORY* offered in *Semester 4*
2	Cryptography and Network Security		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IITKGP	Replacing *23CSL3HA CRYPTOGRAPHIC ALGORITHMS* offered in *Semester 5*
3	Cyber Security and Privacy		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CSL3HD NETWORK SECURITY* offered in *Semester 6*
4	Introduction to Cyber Security		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	Uttarakhand Open University, Haldwani	Replacing *23CSL3HD NETWORK SECURITY* offered in *Semester 6*

5	Privacy and Security in Online Social Media		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIIT Hyderabad	
6	Ethical Hacking		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
7	Secure Computation Part 1		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIIT Bangalore	Replacing *23CSL4HA CYBER FORENSICS* offered in *Semester 7*
8	Digital Forensics		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2022	Uttarakhand Open University, Haldwani	Replacing *23CSL4HA CYBER FORENSICS* offered in *Semester 7*

BASKET II   COMPUTATIONAL BIOLOGY

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	BioInformatics: Algorithms and Applications		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CTL2HA COMPUTATIONAL FUNDAMENTALS FOR BIOINFORMATICS* offered in *Semester 4*
2	Computational Systems Biology		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	Replacing *23CTL3HA COMPUTATIONAL BIOLOGY* offered in *Semester 5*
3	Artificial Intelligence in Drug Discovery and Development		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT (BHU) Varanasi	
4	Next Generation Sequencing Technologies : Data Analysis and Applications		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	
5	Statistics for Biomedical Engineers		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Madras	
6	Fundments of Computational Biology		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	CSVTU, Bhilai	

BASKET III   COMPUTER VISION

Sl. No.	Course	Course Code	Course Type	Duration	Offering Platform	B.Tech Regulation	Institution Offering the Course	Remarks
1	Computer Vision		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Kharagpur	Replacing *23CTL3HB ADVANCED CONCEPTS IN COMPUTER VISION* offered in *Semester 5*
2	Computer Vision And Image Processing - Fundamentals And Applications		MOOC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2023	IIT Guwahati	
3	Digital Image Processing		MOCC	12 Weeks	NPTEL/ SWAYAM	B.Tech Regulation 2022	IIT Kharagpur	