

COURSE STRUCTURE

for

B.TECH. DEGREE

in

COMPUTER SCIENCE AND ENGINEERING

(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

(Applicable from the academic session 2024-2025)



Dr. B. C. Roy Engineering College

An Autonomous Institution

Approved by: All India Council for Technical Education (AICTE)

*Affiliated to: Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly Known as -WBUT)*

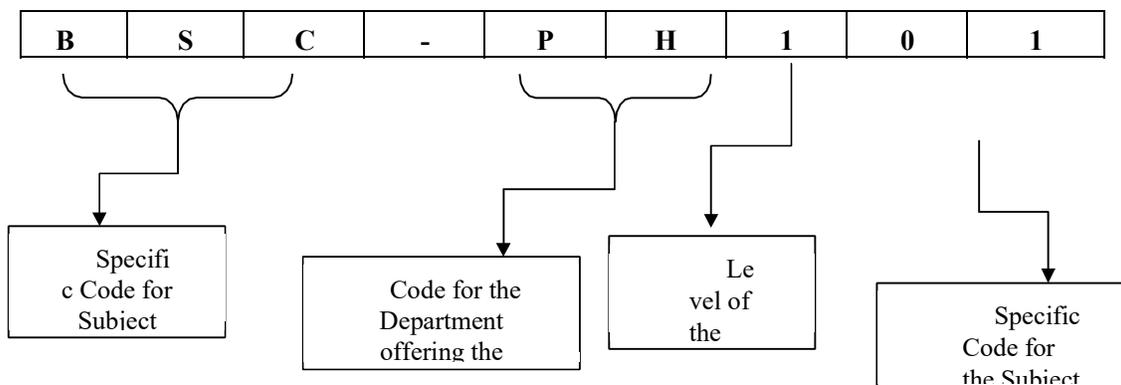
Jemua Road, Durgapur, West Bengal, India, 713206

The first year course structure (Page 3 and Page 4) is unanimously accepted and approved in the first BoS meeting held in the Department of a) Physics, b) Chemistry, c) Mathematics, d) English, e) Electrical Engineering, f) Electronics and Communication Engineering, g) Computer Science and Engineering, h) Mechanical Engineering. The BoS of CSE (AIML) in its first meeting (held in the Department of CE (AIML) on 6th November, 2024) has unanimously accepted and approved the four-year course structure of CSE (AIML).



Apur Chandra Dasgupta
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Subject Numbering Scheme:



Semester Wise Break Up of Credit (New Autonomous Structure)

Sem1	Sem2	Sem3	Sem4	Sem5	Sem6	Sem7	Sem8	Total
20	23	21	23	22	23	21	12	165

S. No.	Category	Breakup of Credits (Actual) As per Proposed Autonomous Structure
1.	Humanities and Social Sciences including Management courses	14
2.	Basic Science Courses	14
3.	Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/ computer etc.	30
4.	Professional core course	69
5.	Professional Elective specialization/branch courses relevant to chosen	6
6.	Indian Knowledge System	Non- Credit
7.	Multidisciplinary Open Electives Courses	6
8.	Project work, seminar and internship in industry or appropriate work place/ academic and research institutions in India/abroad	26
9.	Mandatory Non Credit Courses – Audit Course	
Total Credits		165

Dr. B. C. Roy Engineering College Durgapur (An autonomous institute)
Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning)
Proposed Curriculum Structure (effective from 2024-25 admission batch)
Semester: I

Sl. No.	Category (Major/Minor/Multi-Disciplinary/Ability Enhancement/Skill Enhancement)	Course Type (BS/HM/ES/PC/PE/OE)	Course Code (2024-25)	Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Ability Enhancement	BS	BSC-M101	M-101	MATHEMATICS-I	3	0	0	Theory	3
2	Multi-Disciplinary	BS	BSC-PH101	PH-101	PHYSICS	3	0	0	Theory	3
3	Multi-Disciplinary	ES	ESC-EE101	EE-101	BASIC ELECTRICAL ENGINEERING	3	0	0	Theory	3
4	Multi-Disciplinary	ES	ESC-ME101	ME-101	ENGINEERING MECHANICS	3	0	0	Theory	3
5	Ability Enhancement	HM	HS-MC101	ENG-101	ENGLISH LANGUAGE AND TECHNICAL COMMUNICATION	3	0	0	Theory	3
6	Multi-Disciplinary	BS	BSC-PH191	PH-191	PHYSICS LAB	0	0	2	Practical	1
7	Multi-Disciplinary	ES	ESC-EE191	EE-191	BASIC ELECTRICAL ENGINEERING LAB	0	0	2	Practical	1
8	Ability Enhancement	HM	HS-MC191	ENG-191	LANGUAGE LAB	0	0	2	Practical	1
9	Skill Enhancement	ES	ESC-ME192	ME-192	WORKSHOP PRACTICES	0	0	4	Practical	2
10		Extra Curr.	BS-121	BS-181	NSS Activity	0	0	0	Sessional	
TOTAL CREDIT										20

Semester: II

Sl. No.	Category (Major/Minor/Multi-Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC/PE/OE)	Course Code (2024-25)	Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Multi-Disciplinary	BS	BSC-CH201	CH-201	CHEMISTRY	3	0	0	Theory	3
2	Ability Enhancement	BS	BSC-M202	M-202	MATHEMATICS-II	3	0	0	Theory	3
3	Major	ES	ESC-CS201	CS-201	INTRODUCTION TO COMPUTER HARDWARE AND SOFTWARE	3	0	0	Theory	3
4	Major	ES	ESC-CS202	CS-202	PROGRAMMING FOR PROBLEM SOLVING	3	0	0	Theory	3
5	Multi-Disciplinary	ES	ESC-EC201	EC-201	BASIC ELECTRONICS ENGINEERING	3	0	0	Theory	3
6	Ability Enhancement	BS	MC-ES201	ENV-281	ENVIRONMENTAL SCIENCE	0	0	0	Sessional	0
7	Multi-Disciplinary	BS	BSC-CH291	CH-291	CHEMISTRY LAB	0	0	2	Practical	1
8	Major	ES	ESC-CS291	CS-291	INTRODUCTION TO COMPUTER HARDWARE AND SOFTWARE LAB	0	0	4	Practical	2
9	Major	ES	ESC-CS292	CS-292	PROGRAMMING FOR PROBLEM SOLVING LAB	0	0	4	Practical	2
10	Multi-Disciplinary	ES	ESC-EC291	EC-291	BASIC ELECTRONICS ENGINEERING LAB	0	0	2	Practical	1
11	Skill Enhancement	ES	ESC-ME291	ME-291	ENGINEERING GRAPHICS	0	0	4	Practical	2
TOTAL CREDIT										23

Semester: III										
Sl. No.	Category (Major/Minor/Multi- Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC /PE/OE)		Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Major	PC		AM-301	Introduction to Artificial Intelligence	3	0	0	Theory	3
2	Major	PC		AM-302	Data Structure and Algorithms	3	0	0	Theory	3
3	Major	PC		AM-303	Computer System Organization	3	0	0	Theory	3
4	Major	PC		AM-304	Introduction to Object Oriented Programming	3	0	0	Theory	3
5	Ability Enhancement	BS		AM-305	Discrete Mathematics	3	0	0	Theory	3
6	Value Added Course	HM		AM-386	Indian Constitution	0	0	0	Sessional	0
7	Major	PC		AM-392	Data Structure and Algorithms Lab	0	0	4	Practical	2
8	Major	PC		AM-394	Introduction to Object Oriented Programming Lab	0	0	4	Practical	2
9	Skill Enhancement	PC		AM-395	AI/ML Workshop-I (Using Python)	0	0	4	Practical	2
TOTAL CREDIT										21

Semester: IV										
Sl. No.	Category (Major/Minor/Multi- Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC /PE/OE)		Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Ability Enhancement	PC		AM-401	AI, Ethics, Society	3	0	0	Theory	3
2	Major	PC		AM-402	Design and Analysis of Algorithm	3	0	0	Theory	3
3	Major	PC		AM-403	Operating Systems	3	0	0	Theory	3
4	Major	PC		AM-404	Machine Learning	3	0	0	Theory	3
5	Ability Enhancement	BS		AM-405	Mathematics for AIML	3	0	0	Theory	3
6	Major	PC		AM-492	Design and Analysis of Algorithm Lab	0	0	4	Practical	2
7	Major	PC		AM-494	Machine Learning Lab	0	0	4	Practical	2
8	Skill Enhancement	PC		AM-496	Web development lab	0	0	4	Practical	2
9	Skill Enhancement	PC		AM-497	Data Handling and Data Visualization	0	0	4	Practical	2
TOTAL CREDIT										23

Semester: V										
Sl. No.	Category (Major/Minor/Multi- Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC /PE/OE)		Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Major	PC		AM-501	Deep Learning -I	3	0	0	Theory	3
2	Major	PC		AM-502	Computer Networks	3	0	0	Theory	3
3	Major	PC		AM-503	Database Management Systems	3	0	0	Theory	3
4	Multi-Disciplinary / Minor	OE		AM-504/505/506	Open Elective-I (Internet of Things/Embedded AI/ Bio-informatics and Computational Biology)	3	0	0	Theory	3
5	Major	PC		AM-591	Deep Learning I Lab	0	0	4	Practical	2
6	Major	PC		AM-592	Computer Networks Lab	0	0	4	Practical	2
7	Major	PC		AM-593	Database Management Systems Lab	0	0	4	Practical	2
8	Skill Enhancement	PC		AM-584	Minor Project-I	0	0	0	Sessional	4
TOTAL CREDIT										22

Semester: VI										
Sl. No.	Category (Major/Minor/Multi- Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC /PE/OE)		Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Major	PC		AM-601	Deep Learning -II	3	0	0	Theory	3
2	Major	PC		AM-602	Software Engineering	3	0	0	Theory	3
3	Value Added Course	HM		AM-603	Introduction to Entrepreneurship	3	0	0	Theory	3
4	Major	PC		AM-604	Optimization Techniques in Machine Learning	3	0	0	Theory	3
5	Multi-Disciplinary / Minor	OE		AM-605/606/607	Open Elective-II (Blockchain Technology/ AR-VR/Cognitive Computing)	3	0	0	Theory	3
6	Major	PC		AM-691	Deep Learning II Lab	0	0	4	Practical	2
7	Major	PC		AM-692	Software Engineering Lab	0	0	4	Practical	2
8	Skill Enhancement	PC		AM-683	Minor Project-II	0	0	0	Sessional	4
TOTAL CREDIT										23

Semester: VII										
Sl. No.	Category (Major/Minor/Multi- Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC /PE/OE)		Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Major	PC		AM-701	Soft Computing	3	0	0	Theory	3
2	Value Added Course	HM		AM-702	UHV-II	3	0	0	Theory	3
3	Major	PE		AM-703/704/705	Professional Core Electives -I (AI and Cyber Security/ Network Security and Cryptography/Computer Vision)	3	0	0	Theory	3
4	Skill Enhancement	PC		AM-786	Internship	0	0	0	Sessional	6
5	Skill Enhancement	PC		AM-787	Capstone Project -I	0	0	0	Sessional	6
TOTAL CREDIT										21

Semester: VIII										
Sl. No.	Category (Major/Minor/Multi- Disciplinary/Ability Enhancement/Skill Enhancement/Value Added)	Course Type (BS/HM/ES/PC /PE/OE)		Course Code (2025-26 onwards)	Course Title	L	T	P	Type	Credit
1	Ability Enhancement	HM		AM-801	Industrial Management	3	0	0	Theory	3
2	Major	PE		AM-802/803/804	Professional Core Electives -II (AI in Finance and Economics/Generative AI/ AI in Healthcare)	3	0	0	Theory	3
3	Skill Enhancement	PC		AM-885	Capstone Project -II	0	0	0	Sessional	6
TOTAL CREDIT										12