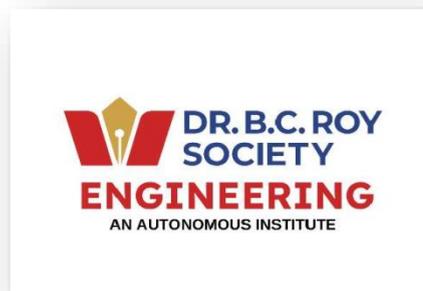


COURSE STRUCTURE
for
B.TECH. DEGREE
in
MECHANICAL ENGINEERING

(Applicable from the academic session 2024-2025)

Approved by BOS(ME) dt 18.5.2025
& Academic Council, Agenda 02.04
dt 23.4.2025



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

Semester Wise Break Up of Credit (New Autonomous Structure)

Sem1	Sem2	Sem3	Sem4	Sem5	Sem6	Sem7	Sem8	Total
20	23	23	24	24	20	18	12	164

S. No.	Category	Breakup of Credits (Actual) As per Proposed Autonomous Structure
1.	Humanities and Social Sciences including Management courses	10
2.	Basic Science Courses	18
3.	Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/ computer etc.	27
4.	Professional core course	66
5.	Professional Elective specialization/branch courses relevant to chosen	6
6.	Indian Knowledge System	Non-Credit
7.	Multidisciplinary Open Electives Courses	14
8.	Project work, seminar and internship in industry or appropriate work place/ academic and research institutions in India/abroad	23
9.	Mandatory Non Credit Courses – Audit Course	Non-credit
Total Credits		164

COURSE CURRICULA

Programme Code: 007

Programme: B.Tech in Mechanical Engineering

Year (Semester): 1st Year (1st Semester)

Sl. No.	Course Category	Course Code (2024-25)	Course Code (2025-26 onwards)	Course Name	L	T	P	Type	Credit
1	BS	BSC-PH101	PH-101	Physics	3	0	0	T	3
2	BS	BSC-M101	M-101	Mathematics-I	3	0	0	T	3
3	ES	ESC-EE101	EE-101	Basic Electrical Engineering	3	0	0	T	3
4	HU	HS-MC101	ENG-101	English Language and Technical Communication	3	0	0	T	3
5	ES	ESC-ME101	ME-101	Engineering Mechanics	3	0	0	T	3
6	BS	BSC-PH191	PH-191	Physics Lab	0	0	2	P	1
7	HU	HS-MC191	ENG-191	Language Lab	0	0	2	P	1
8	ES	ESC-EE191	EE-191	Basic Electrical Engineering Lab	0	0	2	P	1
9	ES	ESC-ME192	ME-192	Workshop Practices	0	0	4	P	2
10	Extra Curr.	BS-121	BS-181	NSS Activity	0	0	0	S	0

TOTAL CREDITS

20

Year (Semester): 1st Year (2nd Semester)

Sl. No.	Course Category	Course Code (2024-25)	Course Code (2025-26 onwards)	Course Name	L	T	P	Type	Credit
1	BS	BSC-M202	M-202	Mathematics-II	3	0	0	T	3
2	BS	BSC-CH201	CH-201	Chemistry	3	0	0	T	3
3	ES	ESC-EC201	EC-201	Basic Electronics Engineering	3	0	0	T	3
4	ES	ESC-CS201	CS-201	Introduction to Computer Hardware and Software	3	0	0	T	3
5	ES	ESC-CS202	CS-202	Programming for Problem Solving	3	0	0	T	3
6	BS	BSC-CH291	CH-291	Chemistry Lab	0	0	2	P	1
7	ES	ESC-EC291	EC-291	Basic Electronics Engineering Lab	0	0	2	P	1
8	ES	ESC-ME291	ME-291	Engineering Graphics	0	0	4	P	2
9	ES	ESC-CS291	CS-291	Introduction to Computer Hardware and Software Lab	0	0	4	P	2
10	ES	ESC-CS292	CS-292	Programming for Problem Solving Lab	0	0	4	P	2
11	MC	MC-ES201	ENV-281	Environmental Science	0	0	0	S	0

TOTAL CREDITS

23

Total Credits in 1st Year : 43

Programme Code: 007

Programme: B.Tech in Mechanical Engineering

Year (Semester): 2nd Year (3rd Semester)

Sl. No.	Category	Course Category	Course Code	Course Name	L	T	P	Type	Credit
1	Minor	BS	ME-301	Advanced Engineering Mathematics	3	0	0	T	3
2	Minor	ES	ME-302	Engineering Materials	3	0	0	T	3
3	Major	PC	ME-303	Strength of Materials	2	1	0	T	3
4	Major	PC	ME-304	Engineering Thermodynamics	2	1	0	T	3
5	Major	PC	ME-305	Manufacturing Process	3	0	0	T	3
6	Major	PC	ME-391	Machine Drawing Lab	0	0	4	P	2
7	Major	PC	ME-392	Manufacturing Practice Lab	0	0	4	P	2
8	Major	PC	ME-393	Strength of Materials & Material Testing Lab	0	0	4	P	2
9	Minor	OE	ME-394	Data Structure and Algorithms	0	1	2	P	2
TOTAL CREDITS									23

Year (Semester): 2nd Year (4th Semester)

Sl. No.	Category	Course Category	Course Code	Course Name	L	T	P	Type	Credit
1	Major	PC	ME-401	Mechanisms	2	1	0	T	3
2	Major	PC	ME-402	Applied Thermodynamics	2	1	0	T	3
3	Major	PC	ME-403	Machining Principles & Machine Tools	2	1	0	T	3
4	Minor	PC	ME-404	Metrology & Instrumentation	3	0	0	T	3
5	Major	PC	ME-405	Design of Machine Elements	3	0	0	T	3
6	Value added	MC	ME-481	Essence of Indian Knowledge	1	0	0	T	0
7	Major	PC	ME-491	Machine Tools Lab	0	0	4	P	2
8	Minor	PC	ME-492	Metrology & Instrumentation Lab	0	0	2	P	1
9	Minor	HU	ME-493	Corporate Communication & Soft Skills	0	0	2	P	1
10	Minor	OE	ME-494	Python in Mechanical Engineering	0	2	2	P	3
11	Minor	PW	ME-482	Project-I (Minor)	0	0	4	S	2
TOTAL CREDITS									24

Total Credits in 2nd Year : 47

Programme Code: 007

Programme: B.Tech in Mechanical Engineering

Year (Semester): 3rd Year (5th Semester)

Sl. No.	Category	Course Category	Course Code	Course Name	L	T	P	Type	Credit
1	Major	PC	ME-501	Machine Design	2	1	0	T	3
2	Major	PC	ME-502	IC Engine & Gas Turbines	3	0	0	T	3
3	Major	PC	ME-503	Dynamics of Machines	2	1	0	T	3
4	Major	PC	ME-504	Fluid Mechanics & Fluid Machines	3	0	0	T	3
5	Minor	HU	ME-505	Operations Research	2	0	0	T	2
6	Major	PC	ME-591	Design Practice Lab	0	0	4	P	2
7	Major	PC	ME-592	Dynamics of Machines Lab	0	0	2	P	1
8	Major	PC	ME-593	Fluid Mechanics & Fluid Machines Lab	0	0	4	P	2
9	Minor	OE	ME-594	AI and Data Science in Mechanical Engineering Lab.	0	2	2	P	3
10	Minor	PW	ME-581	Project-II (Minor)	0	0	4	S	2

TOTAL CREDITS

24

Year (Semester): 3rd Year (6th Semester)

Sl. No.	Category	Course Category	Course Code	Course Name	L	T	P	Type	Credit
1	Major	PC	ME-601	Heat Transfer	2	1	0	T	3
2	Major	PC	ME-602	Power Plant Engineering	3	0	0	T	3
3	Minor	PC	ME-603	Mechatronics	3	0	0	T	3
4	Major	PC	ME-604	Advanced Manufacturing Technology	3	0	0	T	3
5	Minor	HU	ME-605	Production Management	3	0	0	T	3
6	Major	PC	ME-691	Thermal Engineering Lab	0	0	4	P	2
7	Minor	PC	ME-692	Mechatronics Lab	0	0	2	P	1
8	Minor	PW	ME-681	Project -III (Minor)	0	0	4	S	2

TOTAL CREDITS

20

Total Credits in 3rd Year : 44

Programme Code: 007

Programme: B.Tech in Mechanical Engineering

Year (Semester): 4th Year (7th Semester)

Sl. No.	Category	Course Category	Course Code	Course Name	L	T	P	Type	Credit
1	Minor	PE	ME-701 to ME-709	Elective 1	3	0	0	T	3
2	Minor	PE	ME-701 to ME-709	Elective 2	3	0	0	T	3
3	Minor	OE	ME-710 to ME-719	Elective 3	3	0	0	T	3
4	Minor	OE	ME-710 to ME-719	Elective 4	3	0	0	T	3
5	Major	PC	ME-791	Advanced Manufacturing Lab	0	0	2	P	1
6	Major	PW	ME-781	Industrial Training and Seminar	0	0	4	S	2
7	Major	PW	ME-782	Project-IV (Minor)	0	0	6	S	3

TOTAL CREDITS

18

Year (Semester): 4th Year (8th Semester)

Sl. No.	Category	Course Category	Course Code	Course Name	L	T	P	Type	Credit
1	Major	PW	ME-881	Project-V (Major)	0	0	24	S	12

TOTAL CREDITS

12

Total Credits in 4th Year : 30

TOTAL CREDITS (FOUR YEARS): 164

Elective Basket

Elective-1 & Elective-2	PE	ME-701	Finite Element Analysis
	PE	ME-702	CAE
	PE	ME-703	Renewable Energy Engineering
	PE	ME-704	Computational Fluid Dynamics
	PE	ME-705	Additive Manufacturing
	PE	ME-706	Automobile Engineering
	PE	ME-707	Robotics
	PE	ME-708	Advanced welding technology
	PE	ME-709	Selection and Testing of Materials
Elective-3 & Elective-4	OE	ME-710	Total Quality Management
	OE	ME-711	Industrial Pollution and Control
	OE	ME-712	Energy Conservation and Management
	OE	ME-713	Waste to Energy- An Overview
	OE	ME-714	Automation & Control
	OE	ME-715	Water Resource Engineering
	OE	ME-716	Machine Learning
	OE	ME-717	Biology for Engineers
	OE	ME-718	Industrial Safety
	OE	ME-719	Corrosion Engineering