



School of
Engineering & Information Technology

Department of Engineering

**FACULTY -
BACHELOR OF
TECHNOLOGY (B.Tech)**

Mechanical Engineering

(Semester I - VIII)

Scheme of Study
(w.e.f Batch 2020-21)



ARKA JAIN
University
Jharkhand (Jamshedpur)



SEMESTER - I (GROUP A)

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Engineering Chemistry	BSC	3	3	100	70	20	5	5
2	Engineering Mathematics-I	BSC	4	4	100	70	20	5	5
3	Basic Electrical Engineering	ESC	4	4	100	70	20	5	5
4	Engineering Mechanics	ESC	3	3	100	70	20	5	5
	Practical								
5	Engineering Chemistry Lab	BSC	1	2	50	35	5	5	5
6	Basic Electrical Engineering Lab	ESC	1	2	50	35	5	5	5
7	Engineering Mechanics Lab	ESC	1	2	50	35	5	5	5
8	Engineering Graphics & Design	ESC	2	4	50	35	5	5	5
	Total		19	24	600	420	100	40	40



SEMESTER - I (GROUP B)

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Engineering physics	BSC	4	4	100	70	20	5	5
2	Engineering Mathematics - I	BSC	4	4	100	70	20	5	5
3	Programming for Problem Solving	ESC	3	3	100	70	20	5	5
4	English for Communication	HSMC	3	3	100	70	20	5	5
5	Constitution of India	MC	0	2	50	35	10	2.5	2.5
	Practical								
6	Engineering physics Lab	BSC	1	2	50	35	5	5	5
7	Programming for Problem Solving Lab	ESC	2	4	50	35	5	5	5
8	Workshop Practices	ESC	2	4	50	35	5	5	5
	Total		19	26	600	420	105	37.5	37.5



SEMESTER - II (GROUP A)

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Engineering physics	BSC	4	4	100	70	20	5	5
2	Engineering Mathematics - II	BSC	4	4	100	70	20	5	5
3	Programming for Problem Solving	ESC	3	3	100	70	20	5	5
4	English for Communication	HSMC	3	3	100	70	20	5	5
5	Constitution of India	MC	0	2	50	35	10	2.5	2.5
	Practical								
6	Engineering physics Lab	BSC	1	2	50	35	5	5	5
7	Programming for Problem Solving Lab	ESC	2	4	50	35	5	5	5
8	Workshop Practices	ESC	2	4	50	35	5	5	5
	Total		19	26	600	420	105	37.5	37.5



SEMESTER - II (GROUP B)

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Engineering Chemistry	BSC	3	3	100	70	20	5	5
2	Engineering Mathematics - II	BSC	4	4	100	70	20	5	5
3	Basic Electrical Engineering	ESC	4	4	100	70	20	5	5
4	Engineering Mechanics	ESC	3	3	100	70	20	5	5
	Practical								
5	Engineering Chemistry Lab	BSC	1	2	50	35	5	5	5
6	Basic Electrical Engineering Lab	ESC	1	2	50	35	5	5	5
7	Engineering Mechanics Lab	ESC	1	2	50	35	5	5	5
8	Engineering Graphics & Design	ESC	2	4	50	35	5	5	5
	Total		19	24	600	420	100	40	40



SEMESTER - III

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Strength of Materials	PCC	4	4	100	70	20	5	5
2	Engineering Mathematics - III	BSC	4	4	100	70	20	5	5
3	Basic Electronics Engineering	ESC	3	3	100	70	20	5	5
4	Material Science	ESC	3	3	100	70	20	5	5
5	Thermodynamics	PCC	4	4	100	70	20	5	5
6	Environmental Science	MC	0	2	50	35	10	2.5	2.5
	Practical								
7	Strength of Materials Lab	PCC	1	2	50	35	5	5	5
8	Basic Electronics Engineering Lab	ESC	1	2	50	35	5	5	5
8	Machine Drawing Lab	PCC	2	4	50	35	5	5	5
	Total		22	28	700	490	125	42.5	42.5



SEMESTER - IV

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Applied Thermodynamics	PCC	4	4	100	70	20	5	5
2	Fluid Mechanics & Machinery	PCC	4	4	100	70	20	5	5
3	Theory of Machine	PCC	4	4	100	70	20	5	5
4	Mechanical Measurement and Control	PCC	3	3	100	70	20	5	5
5	Biology for Engineers	BSC	3	3	100	70	20	5	5
	Practical								
6	Applied Thermodynamics Lab	PCC	1	2	50	35	5	5	5
7	Fluid Mechanics & Machinery Lab	PCC	1	2	50	35	5	5	5
8	Theory of Machine Lab	PCC	1	2	50	35	5	5	5
9	Mechanical Measurement and Control lab	PCC	1	2	50	35	5	5	5
	Total		22	26	700	490	120	45	45



SEMESTER - V

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Heat & Mass Transfer	PCC	4	4	100	70	20	5	5
2	Solid Mechanics	PCC	4	4	100	70	20	5	5
3	Manufacturing Processes - I	PCC	3	3	100	70	20	5	5
4	Design of Machine Element	PCC	3	3	50	70	20	5	5
5	Open Elective - I Humanities I Professional Practice, Law & Ethics	HSMC	3	3	100	70	20	5	5
6	Essence of Indian knowledge Tradition	MC	0	2	50	35	10	2.5	2.5
	Practical								
7	Heat & Mass Transfer Lab	PCC	1	2	50	35	5	5	5
8	Manufacturing Processes I Lab	PCC	1	2	50	35	5	5	5
9	Design of Machine Element Lab	PCC	2	4	50	35	5	5	5
10	Internship / Industrial Training / Vocational Training (3 - 4 week)	PROJ	2	0	50	35	15	0	0
	Total		23	27	750	525	140	42.5	42.5

SEMESTER - VI

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Manufacturing Process - II	PCC	4	4	100	70	20	5	5
2	Refrigeration & Air Conditioning	PCC	4	4	100	70	20	5	5
3	Elective - I Internal Combustion Engines Microprocessors in Automation	PEC	3	3	100	70	20	5	5
4	Elective - II Total Quality Management Mechatronics Systems Composite Materials	PEC	3	3	100	70	20	5	5
5	Open Elective - II Humanities II Organizational Behavior	HSMC	3	3	100	70	20	5	5
	Practical								
6	Mechanical Software (Solid Works)	PCC	1	2	50	35	5	5	5
7	Manufacturing Process - II Lab	PCC	1	2	50	35	5	5	5
8	Refrigeration & Air Conditioning Lab	PCC	1	2	50	35	5	5	5
	Total		20	23	650	455	115	40	40



SEMESTER - VII

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Automation in Manufacturing	PCC	3	3	100	70	20	5	5
2	Elective III Computer Aided Design Power Plant Engineering	PEC	3	3	100	70	20	5	5
3	Elective - IV Finite Element Analysis Gas Dynamics and Jet Propulsion	PEC	3	3	100	70	20	5	5
4	Open Elective - III Sustainable Development Internet of Things	OEC	3	3	100	70	20	5	5
	Practical								
5	CAD - CAM Lab	PCC	2	4	50	35	5	5	5
6	Minor Project	PROJ	3	6	100	70	30	0	0
7	Summer Internship - II (4-6 Week)	PROJ	3	0	100	70	30	0	0
	Total		20	20	650	455	145	25	25



SEMESTER - VIII

S.No	Name of the Subject	Type of Paper	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA *	Attendance
1	Elective V Energy Conservation and Management Process Planning and Cost Estimation Principles of Management	PEC	3	3	100	70	20	5	5
2	Elective VI Automobile Engineering Design of Transmission Systems	PEC	3	3	100	70	20	5	5
3	Open Elective - IV Artificial Intelligent & Machine Learning Cyber Security Laws , Standards & IPR	OEC	3	3	100	70	20	5	5
4	Open Elective - V Renewable Energy Technologies Project Management	OEC	3	3	100	70	20	5	5
	Practical								
5	Major Project	PROJ	8	16	200	140	60	0	0
6	Extra-Curricular Co-Curricular Activity	PROJ	0	0	100	70	30	0	0
	Total		20	28	700	490	170	20	20



DISTRIBUTION OF CREDIT ACROSS 8 SEMESTERS:

Sl. No	Type of Paper	No. of Paper	Total Credit
1	Humanities and Social Sciences including Management Courses (HSMC)	3	9
2	Basic Science courses (BSC)	8	24
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc (ESC)	11	25
4	Professional core courses (PCC)	26	64
5	Professional Elective courses relevant to chosen specialization/branch (PEC)	6	18
6	Open subjects - Electives from other technical and /or emerging subjects (OEC)	3	9
7	Project work, seminar and internship in industry or elsewhere (PROJ)	5	16
8	Mandatory Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Knowledge Tradition] (MC)	3	0
	Total	65	165

CIA - Continuous Internal Assessment - Based on Projects / Assignment during the semester

Note:

AICTE Activity Points to be earned by students admitted to Diploma program (For more details refer to Chapter 6, AICTE, Activity Point Program, Model Internship Guidelines):

Every regular student, who is admitted to the 4 year Degree program, is required to earn 100 activity points in addition to the total credits earned for the program. Students entering 4 years Degree Program through lateral entry are required to earn 75 activity points in addition to the total credits earned for the program. The activity points earned by the student shall be reflected on the students 8th Semester grade card.

The activities to earn the points can be spread over the duration of the course. However, minimum prescribed duration should be fulfilled.

Activity Points (non-credit) have no effect on SGPA/CGPA and shall not be considered for vertical progression.

Incase student fail to earn the prescribed activity points, Eight semesters Grade Card shall be issued only after earning the required activity Points.

Students shall be eligible for the award of degree only after the release of the Eight Semester grade card.

There are two groups (A & B) in semester 1 & 2. The Group division will be decided by The Dean SoE & IT before commencement of classes