

ARKA JAIN UNIVERSITY

School of
Engineering & Information Technology

Department of Mechanical Engineering

(Semester I - VIII)

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



ARKA JAIN
University
Jharkhand (Jamshedpur)

SEMESTER –I

Name of the Subject	Group	L-T-P	Credit
Engineering Mathematics–I	A & B	03-01-2000	4
Engineering Chemistry	A	3-0-0	3
Programming for Problem Solving	B	3-0-0	3
Basic Electrical Engineering	A	03-01-2000	4
Engineering physics	B	03-01-2000	4
Engineering Mechanics	A	3-0-0	3
English for Communication	B	3-0-0	3
Constitution of India	B	0-0-0	0
Engineering Chemistry Lab	A	0-0-1	1
Engineering Physics Lab	B	0-0-1	1
Basic Electrical Engineering Lab	A	0-0-1	1
Programming for Problem Solving Lab	B	0-0-2	2
Engineering Mechanics Lab	A	0-0-1	1
Engineering Graphics & Design	A	0-0-2	2
Workshop Practices	B	0-0-2	2
TOTAL	A or B	12-02-2005	19

SEMESTER –II

Name of the Subject	Group	L-T-P	Credit
Engineering Mathematics–II	A & B	03-01-2000	4
Engineering Chemistry	B	3-0-0	3
Programming for Problem Solving	A	3-0-0	3
Basic Electrical Engineering	B	03-01-2000	4
Engineering physics	A	03-01-2000	4
Engineering Mechanics	B	3-0-0	3
English for Communication	A	3-0-0	3
Constitution of India	A	0-0-0	0
Engineering Chemistry Lab	B	0-0-1	1
Engineering Physics Lab	A	0-0-1	1
Basic Electrical Engineering Lab	B	0-0-1	1
Programming for Problem Solving Lab	A	0-0-2	2
Engineering Mechanics Lab	B	0-0-1	1
Engineering Graphics& Design	B	0-0-2	2
Workshop Practices	A	0-0-2	2
TOTAL	A or B	12-02-2005	19

SEMESTER –I (Group-A)

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
Engineering Chemistry	BSC	3	3	100	70	20	5	5
Engineering Mathematics– I	BSC	4	4	100	70	20	5	5
Basic Electrical Engineering	ESC	4	4	100	70	20	5	5
Engineering Mechanics	ESC	3	3	100	70	20	5	5
Engineering Chemistry Lab	BSC	1	2	50	35	5	5	5
Basic Electrical Engineering Lab	ESC	1	2	50	35	5	5	5
Engineering Mechanics Lab	ESC	1	2	50	35	5	5	5
Engineering Graphics& Design	ESC	2	4	50	35	5	5	5
TOTAL		19	24	600	420	100	40	40

SEMESTER I (Group-B)

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
Engineering physics	BSC	4	4	100	70	20	5	5
Engineering Mathematics –I	BSC	4	4	100	70	20	5	5
Programming for Problem Solving	ESC	3	3	100	70	20	5	5
English for Communication	HSMC	3	3	100	70	20	5	5
Constitution of India	MC	0	2	50	35	10	2.5	2.5
Engineering physics Lab	BSC	1	2	50	35	5	5	5
Programming for Problem Solving Lab	ESC	2	4	50	35	5	5	5
Workshop Practices	ESC	2	4	50	35	5	5	5
TOTAL		19	26	600	420	105	37.5	37.5

SEMESTER II (Group-A)

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
Engineering physics	BSC	4	4	100	70	20	5	5
Engineering Mathematics –II	BSC	4	4	100	70	20	5	5
Programming for Problem Solving	ESC	3	3	100	70	20	5	5
English for Communication	HSMC	3	3	100	70	20	5	5
Constitution of India	MC	0	2	50	35	10	2.5	2.5
Engineering physics Lab	BSC	1	2	50	35	5	5	5
Programming for Problem Solving Lab	ESC	2	4	50	35	5	5	5
Workshop Practices	ESC	2	4	50	35	5	5	5
TOTAL		19	26	600	420	105	37.5	37.5

SEMESTER –II (Group-B)

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
Engineering Chemistry	BSC	3	3	100	70	20	5	5
Engineering Mathematics– II	BSC	4	4	100	70	20	5	5
Basic Electrical Engineering	ESC	4	4	100	70	20	5	5
Engineering Mechanics	ESC	3	3	100	70	20	5	5
Engineering Chemistry Lab	BSC	1	2	50	35	5	5	5
Basic Electrical Engineering Lab	ESC	1	2	50	35	5	5	5
Engineering Mechanics Lab	ESC	1	2	50	35	5	5	5
Engineering Graphics& Design	ESC	2	4	50	35	5	5	5
TOTAL		19	24	600	420	100	40	40

SEMESTER-III

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
Strength of Materials	PCC	4	4	100	70	20	5	5
Engineering Mathematics -III	BSC	4	4	100	70	20	5	5
Basic Electronics Engineering	ESC	3	3	100	70	20	5	5
Material Science	ESC	3	3	100	70	20	5	5
Thermodynamics	PCC	4	4	100	70	20	5	5
Environmental Science	MC	0	2	50	35	10	2.5	2.5
Strength of Materials Lab	PCC	1	2	50	35	5	5	5
Basic Electronics Engineering Lab	ESC	1	2	50	35	5	5	5
Machine Drawing Lab	PCC	2	4	50	35	5	5	5
TOTAL		22	28	700	490	125	42.5	42.5

SEMESTER-IV

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
Applied Thermodynamics	PCC	4	4	100	70	20	5	5
Fluid Mechanics & Machinery	PCC	4	4	100	70	20	5	5
Theory of Machine	PCC	4	4	100	70	20	5	5
Mechanical Measurement and Control	PCC	3	3	100	70	20	5	5
Biology for Engineers	BSC	3	3	100	70	20	5	5
Applied Thermodynamics Lab	PCC	1	2	50	35	5	5	5
Fluid Mechanics & Machinery Lab	PCC	1	2	50	35	5	5	5
Theory of Machine Lab	PCC	1	2	50	35	5	5	5
Mechanical Measurement and Control lab	PCC	1	2	50	35	5	5	5
TOTAL		22	26	700	490	120	45	45

SEMESTER V

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
Heat & Mass Transfer	PCC	4	4		70	20	5	5
Solid Mechanics	PCC	4	4	100	70	20	5	5
Manufacturing Processes-I	PCC	3	3	100	70	20	5	5
Design of Machine Element	PCC	3	3	100	70	20	5	5
Open Elective –I Humanities I				100	70	20	5	5
	HSMC	3	3					
Professional Practice, Law & Ethics								
Essence of Indian knowledge Tradition	MC	0	2	50	35	10	2.5	2.5
Heat & Mass Transfer Lab	PCC	1	2	50	35	5	5	5
Manufacturing Processes I Lab	PCC	1	2	50	35	5	5	5
Design of Machine Element Lab	PCC	2	4	50	35	5	5	5
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

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
Manufacturing Process -II	PCC	4	4	100	70	20	5	5
Refrigeration & Air Conditioning	PCC	4	4	100	70	20	5	5
Elective-I				100	70	20	5	5
Internal Combustion Engines	PEC							
Microprocessors in Automation		3	3					
Elective-II				100	70	20	5	5
Total Quality Management								
Mechatronics Systems	PEC	3	3					
Composite Materials				100	70	20	5	5
Open Elective – II Humanities II								
Organizational Behavior	HSMC	3	3					
Mechanical Software (Solid Works)	PCC	1	2	50	35	5	5	5
Manufacturing Process – II Lab	PCC	1	2	50	35	5	5	5
Refrigeration & Air Conditioning Lab	PCC	1	2	50	35	5	5	5
TOTAL		20	23	650	455	115	40	40

SEMESTER VII

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
Automation in Manufacturing	PCC	3	3	100	70	20	5	5
Elective III				100	70	20	5	5
	PEC	3	3					
Computer Aided Design								
Power Plant Engineering				100	70	20	5	5
Elective-IV								
	PEC							
Finite Element Analysis		3	3					
Gas Dynamics and Jet Propulsion				100	70	20	5	5
Open Elective- III								
Sustainable Development								
Internet of Things	OEC	3	3					
CAD-CAM Lab	PCC	2	4	50	35	5	5	5
Minor Project	PROJ	3	6	100	70	30	0	0
Summer Internship –II –(4-6 Week)	PROJ	3	0	100	70	30	0	0
TOTAL		20	20	650	455	145	25	25

SEMESTER VIII

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
Elective V				100	70	20	5	5
	PEC	3	3					
Energy Conservation and Management				100	70	20	5	5
Process Planning and Cost Estimation								
Principles of Management								
Elective VI				100	70	20	5	5
	PEC							
Automobile Engineering		3	3					
Design of Transmission Systems				100	70	20	5	5
Open Elective-IV								
	OEC	3	3					
Artificial Intelligent & Machine Learning				100	70	20	5	5
Cyber Security Laws , Standards & IPR								
Open Elective-V				100	70	20	5	5
	OEC	3	3					
Renewable Energy Technologies								
Project Management				200	140	60	0	0
Major Project	PROJ	8	16					
Extra-Curricular/ Co-Curricular Activity	PROJ	0	0	100	70	30	0	0
TOTAL		20	28	700	490	170	20	20

