Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f) of UGC Act. 1956

CURRICULUM

FOR

Diploma

in

Mechanical Engineering

(Based on UGC & AICTE- CBCS)

Effective from 2018-19

Definition of Credit

1 Hr. Lecture (L) Per Week	1 Credit
1 Hr. Tutorial (T) Per Week	1 Credit
1 Hr. Practical (P) Per Week	0.5 Credit
2 Hr. Practical (P) Per Week	1 Credit

Course Code Definitions

Course code	Definitions
BSC-D	Basic Science Course
ESC-D	Engineering Science Course
HSMC-D	Humanities and Social Sciences including Management Course
ECCA-D	Extra Co-Curricular Activities Courses
OEC-D	Open Electives Course
MC-D	Mandatory Course
PCC-ME-D	Professional Core Course
PEC-ME-D	Professional Electives Course
ME-DP1	Project Stage-I
ME-DP2	Project Stage-II

Structure of Mechanical Engineering

Sl. No.	Category	Breakup of Credits
1	Humanities and Social Sciences including Management courses	13
2	Basic Science courses	29
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	15
4	Professional core courses	64
5	Professional Elective courses relevant to chosen specialization/branch	6
6	Open subjects – Electives from other technical and /or emerging subjects	4
7	Project work, seminar and internship in industry or elsewhere	8
8	Extra Co-Curricular Activities Courses	2
9	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge]	4
Total Credits:		**145**

CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE)

Semester	HSMC	BSC	ESC	PCC	PEC	OEC	PROJECT	MC	Extra Co-Curricular Activities Courses	Total Credit Semester-wise
1st	3	14	7	0	0	0	0	0	1	25
2nd	3	10	8	0	0	0	0	0	1	22
3rd	3	5	0	10	0	4	0	4	0	26
4th	2	0	0	24	0	0	0	0	0	26
5th	0	0	0	17	3	0	2	0	0	22
6th	2	0	0	13	3	0	6	0	0	24
Total Credit Course-wise	13	29	15	64	6	4	8	4	2	145
Total Credit										145

BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-D099	Applied Science	4	0	0	4	II
2	BSC-D100	Applied Science Lab	0	0	2	1	II
3	BSC-D101	Basic Chemistry	3	1	0	4	I
4	BSC-D102	Basic Chemistry Lab	0	0	2	1	I
5	BSC-D103	Basic Physics	3	1	0	4	II
6	BSC-D104	Basic Physics Lab	0	0	2	1	II
7	BSC-D105	Basic Mathematics	3	1	0	4	I
8	BSC-D106	Engineering Mathematics	4	1	0	5	II
9	BSC-D107	Applied Mathematics	4	1	0	5	III
			Total Credits:			**29**	

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT COURSES

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	HSMC-D101	Technical English	3	0	0	3	I
2	HSMC-D102	Communication Skills	2	0	0	2	II
3	HSMC-D103	Life Skills & Professional Practices I	0	0	2	1	II
4	HSMC-D104	Life Skills & Professional Practices II	0	0	2	1	III
5	HSMC-D105	French Through Communicative Approach-I	2	0	0	2	III
6	HSMC-D106	French Through Communicative Approach-II	2	0	0	2	IV
7	HSMC-D107	Organizational Behaviour	2	0	0	2	VI
					Total Credits:	**13**	

MANDATORY COURSES

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-D101	Induction Program	0	0	0	0	I
2	MC-D102	Environmental Science	2	0	0	2	III
3	MC-D103	Values & Ethics	2	0	0	2	III
			Total Credits:			4	

Note. **PDP: Personality Devlopment Program**
PT: Physical Traning
NSS: National Service Scheme
NCC: National Cadet Corps

Extra Co-Curricular Activities Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	ECCA-D101	PT & Games/NSS/NCC/CA	0	0	2	1	I
2	ECCA-D102	PT & Games/NSS/NCC/CA	0	0	2	1	II
					Total Credits:	**2**	

ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	ESC-D101	Fundamentals of Computer	3	0	0	3	I
2	ESC-D102	Fundamentals of Computer Lab	0	0	2	1	I
3	ESC-D103-P1	Workshop Practice-I	0	0	2	1	I
4	ESC-D103-P2	Workshop Practice-II	0	0	2	1	II
5	ESC-D104	Fundamentals of Electrical and Electronics	3	1	0	4	II
6	ESC-D105	Fundamentals of Electrical and Electronics Lab	0	0	2	1	II
7	ESC-D106-P1	Engineering Graphics-I	1	0	2	2	I
8	ESC-D106-P2	Engineering Graphics-II	1	0	2	2	II
					Total Credits:	**15**	

Professional Core Courses

Branch: Branch: Mechanical Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ME-D201	Strength of Materials	03:01:00	4	III/IV
2	PCC-ME-D202	Strength of Materials Lab	00:00:02	1	III/IV
3	PCC-ME-D203	Mechanical Engg. Materials	03:01:00	4	III/IV
4	PCC-ME-D204	Mechanical Engg. Drawing Lab	00:00:02	1	III/IV
5	PCC-ME-D205	Theory of Machinery	03:01:00	4	III/IV
6	PCC-ME-D206	Theory of Machinery Lab	00:00:02	1	III/IV
7	PCC-ME-D207	Fluid Machanics & Machinery	03:01:00	4	III/IV
8	PCC-ME-D208	Fluid Mechanics & Machinery Lab	00:00:02	1	III/IV
9	PCC-ME-D209	Thermal Engineering	03:01:00	4	III/IV
10	PCC-ME-D210	Thermal Engineering Lab	00:00:02	1	III/IV
11	PCC-ME-D211	Manufacturing Technology	03:01:00	4	III/IV
12	PCC-ME-D212	Manufacturing Technology Lab	00:00:02	1	III/IV
13	PCC-ME-D213	Production Process	03:01:00	4	III/IV
		Total Credits:		**34**	

Professional Core Courses

Branch: Branch: Mechanical Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ME-D301	Advanced Manufacturing Process	03:01:00	4	V/VI
2	PCC-ME-D302	Advanced Manufacturing Process Lab	00:00:02	1	V/VI
3	PCC-ME-D303	Automobile Engineering	03:01:00	4	V/VI
4	PCC-ME-D304	Automobile Engineering Lab	00:00:02	1	V/VI
5	PCC-ME-D305	Power Engineering	03:01:00	4	V/VI
6	PCC-ME-D306	Metrology & Quality Control	03:01:00	4	V/VI
7	PCC-ME-D307	Design of Machine Element	03:01:00	4	V/VI
8	PCC-ME-D308	Power Plant Engineering	03:01:00	4	V/VI
9	PCC-ME-D309	Production Technology	03:01:00	4	V/VI
		Total Credits:		**30**	

Professional Elective Courses

Branch: Branch: Mechanical Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester
1	PEC-ME-D301	Tool Engineering	03:00:00	3	V/VI
2	PEC-ME-D302	Refrigeration & Air Conditioning	03:00:00	3	V/VI
3	PEC-ME-D303	Mechatronics	03:00:00	3	V/VI
4	PEC-ME-D304	Measurement & Control	03:00:00	3	V/VI
5	PEC-ME-D305	Energy Conversion & Management	03:00:00	3	V/VI
6	PEC-ME-D306	Production & Costing	03:00:00	3	V/VI
7	PEC-ME-D307	Material Handling System	03:00:00	3	V/VI
8	PEC-ME-D308	Alternate Energy sources & Management	03:00:00	3	V/VI
9	PEC-ME-D309	Wind & Solar Energy System	03:00:00	3	V/VI
10	PEC-ME-D310	Internal Combustion Engine	03:00:00	3	V/VI

OPEN ELECTIVE COURSES

Branch: Branch: Mechanical Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hours			Credit	Semester
			L	T	P		
1	OEC-CSE-D205	Computer Hardware	3	0	0	3	III/IV
2	OEC-CSE-D206	Computer Hardware Lab	0	0	2	1	III/IV
3	OEC-ECE-D201	Basic Electronics	3	0	0	3	III/IV
4	OEC-ECE-D202	Basic Electronics Lab	0	0	2	1	III/IV
5	OEC-ECE-D206	Digital Electronics	3	0	0	3	III/IV
6	OEC-ECE-D207	Digital Electronics Lab	0	0	2	1	III/IV

Project

Branch: Branch: Mechanical Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	ME-DP1	Project Stage-I	00:00:04	2	V
2	ME-DP2	Project Stage-II	00:00:12	6	VI
			Total Credits:	**8**	

COURSE STRUCTURE

SEMESTER I (FIRST YEAR)
Branch: Mechanical Engineering (Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-D103	Basic Physics	3	1	0	4	30	70	100
2	Basic Science Course	BSC-D101	Basic Chemistry	3	1	0	4	30	70	100
3	Basic Science Course	BSC-D105	Basic Mathematics	3	1	0	4	30	70	100
4	Humanities and Social Sciences including Management Course	HSMC-D101	Technical English	3	0	0	3	30	70	100
5	Engineering Science Course	ESC-D101	Fundamentals of Computer	3	0	0	3	30	70	100
						Total(A)	**18**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-D106-P1	Engineering Graphics-I	1	0	2	2	30	20	50
2	Basic Science Course	BSC-D104	Basic Physics Lab	0	0	2	1	30	20	50
3	Basic Science Course	BSC-D102	Basic Chemistry Lab	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-D102	Fundamentals of Computer Lab	0	0	2	1	30	20	50
5	Engineering Science Course	ESC-D103-P1	Workshop Practice-I	0	0	2	1	30	20	50
6	Extra Co-Curricular Activities Course	ECCA-D101	PT and Games/NSS/NCC/CA	0	0	2	1	30	20	50
						Total(B)	**7**	**180**	**120**	**300**
Grand Total (A+B)							**25**	**330**	**470**	**800**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER II (FIRST YEAR)

Branch: Mechanical Engineering (Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Humanities and Social Sciences including Management Course	HSMC-D102	Communication Skills	2	0	0	2	30	70	100
2	Basic Science Course	BSC-D099	Applied Science	4	0	0	4	30	70	100
3	Basic Science Course	BSC-D106	Engineering Mathematics	4	1	0	5	30	70	100
4	Engineering Science Course	ESC-D104	Fundamentals of Electrical & Electronics	3	1	0	4	30	70	100
Total(A)							**15**	**120**	**280**	**400**
Practical/Drawing/Design										
1	Basic Science Course	BSC-D100	Applied Science Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-D105	Fundamentals of Electrical & Electronics Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-D103-P2	Workshop Practice-II	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-D106-P2	Engineering Graphics-II	1	0	2	2	30	20	50
5	Humanities and Social Sciences including Management Course	HSMC-D103	Life Skills & Professional Practices-I	0	0	2	1	30	20	50
6	Extra Co-Curricular Activities Course	ECCA-D102	PT & Games/NSS/NCC/CA	0	0	2	1	30	20	50
Total(B)							**7**	**180**	**120**	**300**
Grand Total (A+B)							**22**	**300**	**400**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER III (2nd YEAR)

Branch: Mechanical Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-D107	Applied Mathematics	4	1	0	5	30	70	100
2	Open Elective Course	OEC-ECE-D201	Basic Electronics	2	1	0	3	30	70	100
3	Professional Core Course	PCC-ME-D201	Strength of Materials	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-D203	Mechanical Engg. Materials	3	1	0	4	30	70	100
5	Mandatory Course	MC-D102	Environmental Science	2	0	0	2	30	70	100
6	Mandatory Course	MC-D103	Values & Ethics	2	0	0	2	30	70	100
7	Humanities and Social Sciences including Management Course	HSMC-D105	French Through Communicative Approach-I	2	0	0	2	30	70	100
						Total(A)	**22**	**210**	**490**	**700**
Practical/Drawing/Design										
1	Open Elective Course	OEC-ECE-D202	Basic Electronics Lab	0	0	2	1	30	20	50
2	Professional Core Course	PCC-ME-D202	Strength of Materials Lab	0	0	2	1	30	20	50
3	Professional Core Course	PCC-ME-D204	Mechanical Engg Drawing Lab	0	0	2	1	30	20	50
4	Humanities and Social Sciences including Management Course	HSMC-D104	Life skill & Professional Practice-II	0	0	2	1	30	20	50
						Total(B)	**4**	**120**	**80**	**200**
Grand Total (A+B)							**26**	**330**	**570**	**900**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER IV (2nd YEAR)

Branch:Mechanical Engineering (Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-ME-D205	Theory Of Machines	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-D207	Fluid Mechanics & Machinery	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-D209	Thermal Engineering	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-D211	Manufacturing Technology	4	0	0	4	30	70	100
5	Professional Core Course	PCC-ME-D213	Production Process	3	1	0	4	30	70	100
6	Humanities and Social Sciences including Management Course	HSMC-D106	French Through Communicative Approach-II	2	0	0	2	30	70	100
						Total(A)	**22**	**180**	**420**	**600**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ME-D206	Theory of Machines Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ME-D208	Fluid Machanics & Machinery Lab	0	0	2	1	30	20	50
3	Professional Core Course	PCC-ME-D210	Thermal Engineering Lab	0	0	2	1	30	20	50
4	Professional Core Course	PCC-ME-D212	Manufacturing Technology Lab	0	0	2	1	30	20	50
Total(B)							**4**	**120**	**80**	**200**
Grand Total (A+B)							**26**	**300**	**500**	**800**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER V (3rd YEAR)

Branch: Mechanical Engineering (Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course	PEC-ME-D310	Internal Combustion Engine	3	0	0	3	30	70	100
2	Professional Core Course	PCC-ME-D301	Advanced Manufacturing Process	4	0	0	4	30	70	100
3	Professional Core Course	PCC-ME-D307	Design of Machine Element	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-D305	Power Engineering	3	1	0	4	30	70	100
5	Professional Core Course	PCC-ME-D306	Metrology & Quality Control	3	1	0	4	30	70	100
						Total(A)	**19**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ME-D302	Advanced Manufacturing Process Lab	0	0	2	1	30	20	50
2	Project Work	ME-DP1	Project Stage-I (Mini Project/ Industrial Training)	0	0	4	2	75	25	100
						Total(B)	**3**	**105**	**45**	**150**
Grand Total (A+B)							**22**	**255**	**395**	**650**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER VI (3rd YEAR)

Branch: Mechanical Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course	PEC-ME-D309	Wind & Solar Energy System	3	0	0	3	30	70	100
2	Professional Core Course	PCC-ME-D303	Automobile Engineering	4	0	0	4	30	70	100
3	Professional Core Course	PCC-ME-D308	Power Plant Engineering	4	0	0	4	30	70	100
4	Professional Core Course	PCC-ME-D309	Production Technology	4	0	0	4	30	70	100
5	Humanities and Social Sciences including Management Course	HSMC-D107	Organisational Behaviour	2	0	0	2	30	70	100
						Total(A)	**17**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Courses	PCC-ME-D304	Automobile Engineering Lab	0	0	2	1	30	20	50
2	Project Work	ME-DP2	Project Stage-II (Major Project Work & Dissertation)	0	0	12	6	150	50	200
						Total(B)	**7**	**180**	**70**	**250**
Grand Total (A+B)							**24**	**330**	**420**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination