SARALA BIRLA UNIVERSITY
RANCHI

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 AICTE- CBCS)

Effective from 2019-20

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 (Total 141)
1	Humanities and Social Sciences including Management courses	13
2	Basic Science courses	25
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:	**141**

BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-D101	Basic Chemistry	3	1	0	4	I
2	BSC-D102	Basic Chemistry Lab	0	0	2	1	I
3	BSC-D103	Basic Physics	3	1	0	4	II
4	BSC-D104	Basic Physics Lab	0	0	2	1	II
5	BSC-D105	Basic Mathematics	4	1	0	5	I
6	BSC-D106	Engineering Mathematics	4	1	0	5	II
7	BSC-D107	Applied Mathematics	4	1	0	5	III
					Total Credits:	**25**	

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT COURSE

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**	

Extra Co-Curricular Activities Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	ECCA-D101	PT and Games/NSS/NCC/CA Lab	0	0	2	1	I
2	ECCA-D102	PT and Games/NSS/NCC/CA Lab	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	4	2	I
3	ESC-D103	Workshop Practice	0	0	4	2	I
4	ESC-D104	Fundamentals of Electrical and Electronics	3	1	0	4	II
5	ESC-D105	Fundamentals of Electrical and Electronics Lab	0	0	2	1	II
6	ESC-D106	Engineering Graphics	1	0	4	3	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	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 & Mechanery	03:01:00	4	III/IV
8	PCC-ME-D208	Fluid Machanics & Mechanery 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	Industrial Fluid Power	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	Power Plant Engineering	03:00:00	3	V/VI
3	PEC-ME-D303	Mechatronics	03:00:00	3	V/VI
4	PEC-ME-D304	Measurement and 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 and Management	03:00:00	3	V/VI
9	PEC-ME-D309	Refrigeration and Air-conditioning	03:00:00	3	V/VI
10	PEC-ME-D310	CAD-CAM & Automation	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	IV
2	OEC-CSE-D206	Computer Hardware Lab	0	0	2	1	IV
3	OEC-ECE-D201	Basic Electronics	3	0	0	3	IV
4	OEC-ECE-D202	Basic Electronics Lab	0	0	2	1	IV
5	OEC-ECE-D206	Digital Electronics	3	0	0	3	IV
6	OEC-ECE-D207	Digital Electronics Lab	0	0	2	1	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: 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-D101	Basic Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-D105	Basic Mathematics	4	1	0	5	30	70	100
3	Humanities and Social Sciences including Management Courses	HSMC-D101	Technical English	3	0	0	3	30	70	100
4	Engineering Science Course	ESC-D101	Fundamentals of Computer	3	0	0	3	30	70	100
Total(A)							**15**	**120**	**280**	**400**
Practical/Drawing/Design										
1	Basic Science Course	BSC-D102	Basic Chemistry Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-D102	Fundamentals of Computer Lab	0	0	4	2	30	20	50
3	Engineering Science Course	ESC-D103	Workshop Practice	0	0	4	2	30	20	50
4	Extra Co-Curricular Activities Courses	ECCA-D101	PT and Games/NSS/NCC/CA Lab	0	0	2	1	30	20	50
Total(B)							**6**	**120**	**80**	**200**
Grand Total (A+B)							**21**	**240**	**360**	**600**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER II (FIRST YEAR)

Branch: 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-D106	Engineering Mathematics	4	1	0	5	30	70	100
3	Humanities and Social Sciences including Management Courses	HSMC-D102	Communication Skills	2	0	0	2	30	70	100
4	Engineering Science Course	ESC-D104	Fundamentals of Electrical and Electronics	3	1	0	4	30	70	100
						Total(A)	**15**	**120**	**280**	**400**
Practical/Drawing/Design										
1	Basic Science Course	BSC-D104	Basic Physics Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-D105	Fundamentals of Electrical and Electronics Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-D106	Engineering Graphics	1	0	4	3	30	20	50
4	Humanities and Social Sciences including Management Courses	HSMC-D103	Life Skills & Professional Practices-I	0	0	2	1	30	20	50
5	Extra Co-Curricular Activities Courses	ECCA-D102	PT and Games/NSS/NCC/CA Solving	0	0	2	1	30	20	50
						Total(B)	**7**	**150**	**100**	**250**
Grand Total (A+B)							**22**	**270**	**380**	**650**

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 Courses		Open Elective-I	2	1	0	3	30	70	100
3	Professional Core Courses	PCC-ME-D201	Strength of Materials	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-ME-D203	Mechanical Engg. Materials	3	1	0	4	30	70	100
5	Mandatory Courses	MC-D102	Environmental Science	2	0	0	2	30	70	100
6	Mandatory Courses	MC-D103	Values & Ethics	2	0	0	2	30	70	100
7	Humanities and Social Sciences including Management Courses	HSMC-D105	Foreign Languages	2	0	0	2	30	70	100
						Total(A)	**22**	**210**	**490**	**700**
Practical/Drawing/Design										
1	Open Elective Courses		Open Elective Lab-I	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ME-D202	Strength of Materials Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-ME-D204	Mechanical Engg Drawing Lab	0	0	2	1	30	20	50
3	Humanities and Social Sciences including Management Courses	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 Courses	PCC-ME-D207	Fluid Machanics & Mechinery	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-ME-D209	Thermal Engineering	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-ME-D211	Manufacturing Technology	4	0	0	4	30	70	100
5	Professional Core Courses	PCC-ME-D213	Production Process	3	1	0	4	30	70	100
6	Humanities and Social Sciences including Management Courses		Foreign Languages	2	0	0	2	30	70	100
						Total(A)	**22**	**180**	**420**	**600**
Practical/Drawing/Design										
1	Professional Core Courses	PCC-ME-D206	Theory Of Machines Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ME-D208	Fluid Machanics & Mechanery Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-ME-D210	Thermal Engineering Lab	0	0	2	1	30	20	50
4	Professional Core Courses	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		Professional Elective Course-I	3	0	0	3	30	70	100
2	Professional Core Courses	PCC-ME-D301	Advanced Manufacturing Process	4	0	0	4	30	70	100
3	Professional Core Courses	PCC-ME-D303	Automobile Engineering	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-ME-D305	Power Engineering	3	1	0	4	30	70	100
5	Professional Core Courses	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 Courses	PCC-ME-D302	Advanced Manufacturing Process Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ME-D304	Automobile Engineering Lab	0	0	2	1	30	20	50
3	Project Stage-I	ME-DP1	Mini Project/ Workshop	0	0	4	2	75	25	100
			Total(B)				**4**	**135**	**65**	**200**
			Grand Total (A+B)				**23**	**285**	**415**	**700**

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		Professional Elective Course-II	3	0	0	3	30	70	100
2	Professional Core Courses	PCC-ME-D307	Design of Machine Element	4	0	0	4	30	70	100
3	Professional Core Courses	PCC-ME-D308	Industrial Fluid Power	4	0	0	4	30	70	100
4	Open Elective Course	PCC-ME-D309	Production Technology	4	0	0	4	30	70	100
5	Humanities and Social Sciences including Management Courses	HSMC-D107	Organisational Behaviour	2	0	0	2	30	70	100
						Total(A)	**17**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Project Stage-II	ME-DP2	Project Work & Dissertation	0	0	12	6	50	150	200
						Total(B)	**6**	**50**	**150**	**200**
Grand Total (A+B)							**23**	**200**	**500**	**700**

L-Lecture, T-Tutorial, P-Practical
IA- Internal Assessment, ESE-End Semester Examination