

# **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 Civil Engineering**

**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 Hours Practical (Lab)/week	1 credit
4 Hours Practical (Lab)/week	2 credits

## COURSE CODE DEFINATIONS

Course code	Definitions
<b>BSC-D</b>	Basic Science Course
<b>ESC-D</b>	Engineering Science Courses
<b>HSMC-D</b>	Humanities, Social Science including Management Course
<b>MC-D</b>	Mandatory Courses
<b>ECCA-D</b>	Extra Co- Curricular Courses
<b>PCC-CE-D</b>	Professional core courses
<b>PEC-CE-D</b>	Professional Elective Courses
<b>CE-DP1</b>	Project Stage-I
<b>CE-DP2</b>	Project Stage-II

## STRUCTURE OF CIVIL 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	66
5	Professional Elective courses relevant to chosen specialization/branch	3
6	Open subjects – Electives from other technical and /or emerging subjects	4
7	Project work, seminar and internship in industry or elsewhere	8
8	Mandatory Courses [Environmental Sciences, Induction Program, Essence of Indian Traditional Knowledge]	4
9	Extra Co-Curricular Activity	2
<b>Total:</b>		<b>144</b>

**CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE )**

Semester	HSMC-D	BSC-D	ESC-D	PCC-CE-D	PEC-CE-D	OEC-D	PROJECT	ECCA-D	MC-D	Total Credit Semester-wise
1st	3	14	7	0	0	0	0	1	0	25
2nd	3	10	8	0	0	0	0	1	0	22
3rd	3	5	0	11	0	0	0	0	4	23
4th	2	0	0	18	0	4	0	0	0	24
5th	0	0	0	21	0	0	2	0	0	23
6th	2	0	0	16	3	0	6	0	0	27
<b>Total Credit Course-wise</b>	13	29	15	66	3	4	8	2	4	144
<b>Total Credit</b>										144

## BASIC SCIENCE COURSES

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

## 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	0	1	2	2	I
8	ESC-D106-P2	Engineering Graphics-II	0	1	2	2	II
<b>Total Credits:</b>						<b>15</b>	

## 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 Skill	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
<b>Total Credits:</b>						<b>13</b>	

## 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
2	MC-D103	Values and Ethics	2	0	0	2	IV
<b>Total Credits:</b>						<b>4</b>	



## 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
<b>Total Credits:</b>						<b>2</b>	

## PROFESSIONAL CORE COURSES (Sem III & IV)

Branch: Civil Engineering

Sl. No.	Course Code	Course Title	Hours			Credit	Semester
			L	T	P		
1	PCC-CE-D201	Building Construction	3	1	0	4	III
2	PCC-CE-D202	Building Construction Lab	0	0	2	1	III
3	PCC-CE-D203	Surveying & Levelling	3	1	0	4	III
4	PCC-CE-D204	Surveying & Levelling Lab	0	0	2	1	III
6	PCC-CE-D205	Building Drawing	0	0	2	1	III
5	PCC-CE-D206	Concrete Technology	3	0	0	3	IV
7	PCC-CE-D207	Mechanics of Structure	3	1	0	4	IV
8	PCC-CE-D208	Mechanics of Structure Lab	0	0	2	1	IV
9	PCC-CE-D209	Geo-technical Engineering	3	1	0	4	IV
10	PCC-CE-D210	Geo-technical Engineering Lab	0	0	2	1	IV
11	PCC-CE-D211	Hydraulics	3	1	0	4	IV
12	PCC-CE-D212	Hydraulics Lab	0	0	2	1	IV
<b>Total Credit:</b>						<b>29</b>	

## PROFESSIONAL CORE COURSES (Sem V & VI)

Branch: Civil Engineering

1	PCC-CE-D301	Theory of Structure	3	1	0	4	V
2	PCC-CE-D302	Theory of Structure Lab	0	0	2	1	V
3	PCC-CE-D303	Highway Engineering	3	1	0	4	V
4	PCC-CE-D304	Highway Engineering lab	0	0	2	1	V
5	PCC-CE-D305	Irrigation Engineering	3	1	0	4	V
6	PCC-CE-D306	Design of Structure	3	1	0	4	V
7	PCC-CE-D307	Design of Structure lab	0	0	2	1	V
8	PCC-CE-D308	Disaster Management	2	0	0	2	V

9	PCC-CE-D309	Design of Steel Structure	3	1	0	4	VI
10	PCC-CE-D310	Contracts and Accounts	3	0	0	3	VI
11	PCC-CE-D311	Contracts and Accounts Lab	0	0	2	1	VI
12	PCC-CE-D312	Environmental Engineering	3	1	0	4	VI
13	PCC-CE-D313	Environmental Engineering Lab	0	0	2	1	VI
14	PCC-CE-D314	Estimating and Costing	2	0	0	2	VI
15	PCC-CE-D315	Estimating and Costing Lab	0	0	2	1	VI
<b>Total Credit:</b>						<b>37</b>	

# PROFESSIONAL ELECTIVE COURSES

Branch: Civil Engineering

Sl. No.	Course Code	Course Title	Hours			Credit	Semester
			L	T	P		
1	PEC-CE-D301	Precast and Prestressed Concrete	3	0	0	3	VI
2	PEC-CE-D302	Construction & Project Management	3	0	0	3	VI
3	PEC-CE-D303	Water Resources Planning & Management	3	0	0	3	VI
4	PEC-CE-D304	Traffic Engineering	3	0	0	3	VI
5	PEC-CE-D305	Solid Waste Management	3	0	0	3	VI
6	PEC-CE-D306	Advanced Construction Technology & Equipment	3	0	0	3	VI
7	PEC-CE-D307	Pavement Design & maintenance	3	0	0	3	VI
8	PEC-CE-D308	Green Building and Energy Conservation	3	0	0	3	VI
9	PEC-CE-D309	Building Services and Maintenance	3	0	0	3	VI
10	PEC-CE-D310	Repairs and Maintenance of Structures	3	0	0	3	VI
11	PEC-CE-D311	Advanced Design of Structures	3	0	0	3	VI
12	PEC-CE-D312	Tendering and Accounts	3	0	0	3	VI

## OPEN ELECTIVE COURSES

Branch: Civil Engineering

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: Civil Engineering

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



# COURSE STRUCTURE

**SEMESTER I (FIRST YEAR)**

**Branch: Civil Engineering**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Basic Science Course	BSC-D101	Basic Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-D103	Basic Physics	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 Courses	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
<b>Total(A)</b>							<b>18</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Basic Science Course	BSC-D102	Basic Chemistry Lab	0	0	2	1	30	20	50
2	Basic Science Course	BSC-D104	Basic Physics Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-D102	Fundamentals of Computer Lab	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-D103-P1	Workshop Practice-I	0	0	2	1	30	20	50
5	Engineering Science Course	ESC-D106-P1	Engineering Graphics-I	0	1	2	2	30	20	50
6	Extra Co-curricular Activities Course	ECCA-D101	PT and Games/NSS/NCC/CA Lab	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>7</b>	<b>180</b>	<b>120</b>	<b>300</b>
<b>Grand Total (A+B)</b>							<b>25</b>	<b>330</b>	<b>470</b>	<b>800</b>
<b>L-Lecture, T-Tutorial, P-Practical</b> <b>IA- Internal Assessment, ESE-End Semester Examination</b>										





# COURSE STRUCTURE

SEMESTER II (FIRST YEAR)

Branch: Civil Engineering

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

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

# COURSE STRUCTURE

## SEMESTER III (SECOND YEAR]

### Branch: Civil Engineering

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	Professional Core Courses	PCC-CE-D201	Building Construction	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-CE-D203	Surveying & Levelling	3	1	0	4	30	70	100
4	Mandatory Courses	MC-D103	Values & Ethics	2	0	0	2	30	70	100
5	Mandatory Courses	MC-D102	Environmental Science	2	0	0	2	30	70	100
6	Humanities & Social Science including Management	HSMC-D105	French through Communicative Approach-I	2	0	0	2	30	70	100
<b>Total(A)</b>							<b>19</b>	<b>180</b>	<b>420</b>	<b>600</b>
Practical/Drawing/Design										
1	Professional Core Courses	PCC-CE-D202	Building Construction Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-CE-D204	Surveying & Levelling Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-CE-D205	Building Drawing	0	0	2	1	30	20	50
4	Humanities & Social Science including Management	HSMC-D104	Life Skills & Professional Practice-II	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>4</b>	<b>120</b>	<b>80</b>	<b>200</b>
<b>Grand Total (A+B)</b>							<b>23</b>	<b>300</b>	<b>500</b>	<b>800</b>

**Tutorial, P-Practical**

**IA- Internal Assessment, ESE-End Semester Examination**





# COURSE STRUCTURE

SEMESTER IV (SECOND YEAR)

Branch: Civil Engineering

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Core Courses	PCC-CE-D206	Concrete Technology	3	0	0	3	30	70	100
2	Professional Core Courses	PCC-CE-D207	Mechanics of Structure	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-CE-D209	Geo-technical Engineering	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-CE-D211	Hydraulics	3	1	0	4	30	70	100
5	Open Elective Courses	OEC-CSE-D205	Computer Hardware	3	0	0	3	30	70	100
6	Humanities & Social Science including Management	HSMC-D106	French Through Communicative Approach-II	2	0	0	2	30	70	100
<b>Total(A)</b>							<b>20</b>	<b>180</b>	<b>420</b>	<b>600</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core Courses	PCC-CE-D208	Mechanics of Structure Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-CE-D210	Geo-technical Engineering Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-CE-D212	Hydraulics Lab	0	0	2	1	30	20	50
4	Open Elective Courses	OEC-CSE-D206	Computer Hardware Lab	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>4</b>	<b>120</b>	<b>80</b>	<b>200</b>
<b>Grand Total (A+B)</b>							<b>24</b>	<b>300</b>	<b>500</b>	<b>800</b>
<p><b>L-Lecture, T-Tutorial, P-Practical</b>  <b>IA- Internal Assessment, ESE-End Semester Examination</b></p>										

# COURSE STRUCTURE

**SEMESTER V (THIRD YEAR)**

**Branch: Civil Engineering**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Core Courses	PCC-CE-D301	Theory of Structure	3	1	0	4	30	70	100
2	Professional Core Courses	PCC-CE-D303	Highway Engineering	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-CE-D305	Irrigation Engineering	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-CE-D306	Design of Structure	3	1	0	4	30	70	100
5	Professional Core Courses	PCC-CE-D308	Disaster Management	2	0	0	2	30	70	100
<b>Total(A)</b>							<b>18</b>	<b>180</b>	<b>420</b>	<b>600</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core Courses	PCC-CE-D302	Theory of Structure Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-CE-D304	Highway Engineering lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-CE-D307	Design of Structure Lab	0	0	2	1	30	20	50
4	Project	CE-DP1	Project Stage I	0	0	4	2	30	20	50
<b>Total(B)</b>							<b>5</b>	<b>120</b>	<b>80</b>	<b>200</b>
<b>Grand Total (A+B)</b>							<b>23</b>	<b>300</b>	<b>500</b>	<b>800</b>

**L-Lecture, T-Tutorial, P-Practical**

**IA- Internal Assessment, ESE-End Semester Examination**





# COURSE STRUCTURE

**SEMESTER VI (THIRD YEAR]**

**Branch: Civil Engineering**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Humanities & Social Science including Management	HSMC-D107	Organisational Behaviour	2	0	0	2	30	70	100
2	Professional Core courses	PCC-CE-D309	Design of Steel Structure	3	1	0	4	30	70	100
3	Professional Core courses	PCC-CE-D310	Contracts and Accounts	3	0	0	3	30	70	100
4	Professional Core courses	PCC-CE-D312	Environmental Engineering	3	1	0	4	30	70	100
5	Professional Core courses	PCC-CE-D314	Estimating and Costing	2	0	0	2	30	70	100
6	Professional Elective courses	PEC-CE-D311	Advanced Design of Structures	2	1	0	3	30	70	100
<b>Total(A)</b>							<b>18</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core courses	PCC-CE-D311	Contracts and Accounts Lab	0	0	2	1	30	20	50
2	Professional Core courses	PCC-CE-D313	Environmental Engineering Lab	0	0	2	1	30	20	50
3	Professional Core courses	PCC-CE-D315	Estimating and Costing Lab	0	0	2	1	30	20	50
4	Project	CE-DP2	Project Stage II	0	0	12	6	150	50	200
<b>Total(B)</b>							<b>9</b>	<b>240</b>	<b>110</b>	<b>350</b>
<b>Grand Total (A+B)</b>							<b>27</b>	<b>390</b>	<b>460</b>	<b>850</b>

**L-Lecture, T-Tutorial, P-Practical**

**IA- Internal Assessment, ESE-End Semester Examination**