



## **SILIGURI INSTITUTE OF TECHNOLOGY CIVIL ENGINEERING**



# **COURSE FILE**

**5TH SEM, 3RD YEAR, 2021**

**PAPER DESCRIPTION:** Design of reinforced concrete structures is an introductory design course in civil engineering. In this course, basic elements governed by bending, shear, axial forces or combination of them are identified and are considered as building blocks of the whole structure. Different methods of design will be briefly described before

introducing the limit states of collapse and serviceability. The designs of elements such as beams, slabs, columns, stairs and foundations will be done as per IS 456:2000.

**PAPER CODE : CE(PC)501**

# Course Description

**Course Title: Design of RC Structures**

**Code: CE(PC)501**

**Semester: 5<sup>th</sup> Year: 3<sup>rd</sup>**

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## Class Schedule

Lecture		Tutorial	Practical	
MONDAY (11:40 a.m. to 12:30 p.m.)	THURSDAY (11:40 a.m. to 12:30 p.m.)	THURSDAY (12:30p.m. to 1:20 p.m.)	WEDNESDAY (10:50am to 12:30pm)	THURSDAY (3:00pm to 4:40pm)

## Hours for meeting students:3 HOURS

MONDAY (11:40 a.m. to 12:30 p.m.)	1 HOUR
THURSDAY (11:40 a.m. to 12:30 p.m.)	2 HOUR

## i) Course Objective

To introduce the students to the fundamentals of reinforced concrete design with emphasis on the design of rectangular and T beams, short and slender columns, slabs, staircases and foundations.

## ii) Course Outcomes

- i. After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The student will be able to:

		Target
CO1	Understand material properties and design methodologies for reinforced concrete structures..	50% students will achieve 60% marks
CO2	Assess different types of loads and prepare layout for reinforced concrete structure	50% students will achieve 60% marks
CO3	Identify and apply the applicable industrial design codes relevant to the design of reinforced concrete members	50% students will achieve 60% marks
CO4	Analyse and design various structural elements of reinforced concrete building like beam, slab, column, footing and staircase	50% students will achieve 60% marks

<b>CO5</b>	Assessment of serviceability criteria for reinforced concrete beam and slab.	40% students will achieve 60% marks
<b>CO6</b>	Prepare structural drawings and detailing and produce design calculations and drawing in appropriate professional format	50% students will achieve 60% marks

- ii. Once the student has successfully complete this course, he/she must be able to answer the following questions or perform / demonstrate the following:

<b>Sl.</b>	<b>Question</b>	<b>BT Level</b>
1.	Factor of safety for steel in limit state is	1
2.	Maximum % of steel in beam is	1
3.	Modular ratio "m" =	1
4.	Load factor in limit state collapse theory for dead load and live load is	1
5.	The minimum % of tensile reinforcement(HYSD-415) in reinforced concrete beam should not be less than	2
6.	Minimum clear cover for slab is	1
7.	Bottom bars under the columns are extended into the interior of the footing slab to a distance greater than	2
8.	An R.C.C. column is treated as long if its slenderness ratio is greater than	2
9.	The diameter of longitudinal bars of a column should never be less than	1
10.	If R and T are rise and tread of a stair spanning horizontally, the steps are supported by a wall on one side and by a stringer beam on the other side, the steps are designed as beams of width	2
11.	The percentage of minimum reinforcement of the gross sectional area in slabs, is	2
12.	The maximum unsupported length between end restraints for a R.C. column is	2
13.	A column is termed as short when its slenderness ratio is	2
14.	The minimum cover to reinforcement in column should not be less than	1

15.	The amount of main reinforcement in a slab is based upon	2
16.	The weight of a foundation is assumed as	2
17.	A rectangular reinforced concrete section having a breadth of 350mm is reinforced with 2 bars of 28mm & 2 bars of 25mm diameter at an effective depth of 700mm. Adopting M-20 grade concrete & Fe-415 HYSD bars determine the ultimate moment of resistance of the section	3
18.	Calculate the ultimate moment of resistance of a T-beam having the following section properties: Width of flange= 1300mm Thickness of flange= 100mm Width of rib= 325mm Effective Depth=600mm Area of steel= 4000mm <sup>2</sup> Use M-20 grade concrete and Fe-415 Steel	3
19.	Write short notes on under-reinforced, balanced and over-reinforced section	2
20.	Design a Reinforced concrete beam of Rectangular Section using the following data. Effective span=8m Live-load=30kN/m Overall depth=650mm M-20 grade concrete and Fe-415 HYSD bars Width=300mm Effective cover= 50mm Effective Depth= 600mm	4
21.	Design a two way slab for a floor to suit the following data: Size of floor: 4m by 6m Edge condition= two adjacent edges discontinuous Use M-20 grade concrete and Fe-415 HYSD bars	4
22.	Design a simply supported reinforced concrete rectangular beam whose centre to centre distance between supports is 8 m and supported on brick walls of 300 mm thickness. The beam is subjected to imposed loads of 7.0 kN/m.	4
23.	Design a floor slab for an interior room, with clear dimensions of 3.5m x 9m. the slab is resting on 30 mm thick masonry walls. Use M20 concrete and Fe315 steel.	4
24.	Figure shows a clear area of 12 m x 8.5 m for a hall construction in a school. The slab is supported on beams of size 225 x 500 mm spaced at 4.0 m centers. The slab thickness is to be designed as 150 mm. Given the characteristic permanent action (excluding selfweight) is 1.5 kN/m <sup>2</sup> , characteristic variable action is 4.0 kN/m <sup>2</sup> . Use M 20 Concrete and Fe 415 steel.	4

25.	The main stair of an office building has to be located in a stair measuring 3.5m x5.5m the vertical distance between the floors is 3.75m. design the stairs. Allow a LL of 2000N/m <sup>2</sup> . Use M20 concrete and Fe415 Steel.	4
26.	A reinforced concrete short column 400mm x 400mm has to carry an axial load of 1200kN. Find the area of steel required. Use M20 concrete and Fe415 steel.	3
27.	A reinforced concrete column of 2.75m effective length carries an axial load of 1600 kN. Design the column using M20 concrete and Fe 415 steel.	4
28.	Design the reinforcements in a short column 400mm x 600mm subjected to an ultimate axial load of 1600 kN together with ultimate moments of 120 kNm and 90 kNm about the major and minor axis respectively. Use M20 concrete and Fe 415 steel.	4
29.	A square column 500mm x 500mm carries an axial load of 1500kN. Design the column and the square footing for the column. The safe bearing capacity of the soil is 225 Kn/m <sup>2</sup> . Use M20 concrete and Fe 415 steel.	4

### iii) Topic/Unit/Chapter Layout

Topic/Unit/Chapter	Lecture Hours	Laboratory hours
1. Introduction	1	1
2. Working stress method of design	4	1
3. Limit state method of design	7	2
4. Beam design by LSM	5	4
5. Slab design by LSM	3	4
6. Continuous slab and beam design by LSM	3	4
7. Design of staircases by LSM	4	4
8. Design of columns by LSM	5	4
9. Design of foundation by LSM	8	6

### iv)Textbooks

1. Reinforced Concrete Design, Krishna Raju & Pranesh, New Age
2. R.C.C. Design, B.C. Punmia, Laxmi Publication

### Reference books :

1. Design of Reinforced Concrete Structures, S. Ramamrutham, Dhanpat Rai Publishing Company
2. Reinforced Concrete Structures, N. Subramanian, Oxford University Press

## (v) Evaluation Scheme

### 1) Theory

Evaluation Criteria	Marks
Internal Exam*	15
Quiz / assignment	10
Attendance	5
University Exam/External Exam	70
Total	100

\* Two internal examinations are conducted; based on those two tests, average of them are considered in a scale of 15.

### Course target attainment levels:

Attainment Level	Inference
Attainment Level 1	40% of the students have attained more than the target level of that CO
Attainment Level 2	50% of the students have attained more than the target level of that CO
Attainment Level 3	60% of the students have attained more than the target level of that CO

Overall Course Attainment Target = 70% of the students will get "A" Grade

Target has been set on the basis of last year's performance / result by the students, student quality this year and difficulty level of the course.

### University Grading System:

Grade	Marks
O	90% and above
E	80 – 89.9%
A	70 – 79.9%
B	60 – 69.9%
C	50 – 59.9%
D	40 – 49.9%
F	Below 40%

**(vi) Mapping of Course Outcomes and Program Outcomes:**

Course Outcomes	Program Outcomes												PSOs	
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	1.	2.
CO1	1													
CO2	1												2	
CO3	1	2												
CO4		1	2										2	
CO5		2		1									2	
CO6			2									2	2	1

**1** = courses in which the student will be exposed to a topic (BT level 1& 2)

**2** = courses in which students will gain competency in that area (BT level 3-4)

**3**= courses in which students will master that skill (BT level 5-6)

CO1 to CO4 partially satisfies application of knowledge of mathematics and science in solving engineering problems. (PO1, PO2).

CO5 partially satisfies application of knowledge of mathematics and science in solving engineering problems. (PO1, PO2).

CO6 minimally satisfies the condition of designing system components and solutions. (PO3).

**(vii) Delivery Methodology**

Outcome	Method	Supporting Tools	Demonstration
CO1	Video lectures	Googlemet, google classroom	Videos, animation & presentation
CO2	Video lectures	IS Codes, google meet, google classroom	Video lecture, presentation, videos
CO3	Video lectures	IS Codes, google meet, google classroom	Video lecture, presentation
CO4	Video lectures	IS Codes, google meet, google classroom	Video lecture, presentation
CO5	Video lectures	IS Codes, google meet, google classroom	Video lecture, presentation
CO6	Video lectures	IS Codes, google meet, google classroom	Video lecture, presentation



**(viii) Assessment Methodology**

Outcome	Assessment Tool	Specific Question/activity aligned to the Outcome
CO1	GOOGLE FORM	QUIZ
CO2	GOOGLE FORM	QUIZ
CO3	GOOGLE CLASSROOM	ASSIGNMENT
CO4	GOOGLE CLASSROOM	ASSIGNMENT
CO5	GOOGLE CLASSROOM	ASSIGNMENT
CO6	PRACTICAL WORK	RC SESSIONAL LAB

**(ix) A. Weekly Lesson Plan**

Week	Lectures	Tutorial	Practical	Assignment
1	Introduction: principles of design of reinforced concrete members- working stress and limit state method of design			
	Working stress method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force			
2	Balanced, under reinforced and over reinforced sections			
	Design of singly reinforced section			
		Design of doubly reinforced section		
3	Limit state method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force			
		Limit state method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force		
	Concept of bond stress			
4	Concept of development length			
	Use of design aids for reinforced concrete (SP:16)			

		Use of design aids for reinforced concrete (SP:16)		
5	Use of design aids for reinforced concrete (SP:16)			
	Beam design by LSM: Analysis, design and detailing of singly reinforced rectangular beam			
		Analysis, design and detailing of singly reinforced T beam		
6	Analysis, design and detailing of singly reinforced L beam			Assignment1: Numerical on Design of doubly reinforced section
		Analysis, design and detailing of doubly reinforced beam sections		
	Analysis, design and detailing of doubly reinforced beam sections			
	Design and detailing of one way slab			
7	Design and detailing of two way slab			
		Design and detailing of two way slab		
8	Design and detailing of continuous beams			Assignment2: Numerical on Design of continuous slab
	Design and detailing of continuous slab			
		Design and detailing of continuous slab		
9	Design and detailing of reinforced concrete doglegged staircase			
	Design and detailing of reinforced concrete doglegged staircase			
		Design and detailing of reinforced concrete doglegged staircase		
10	Design and detailing of reinforced concrete doglegged staircase			
	Design and detailing of reinforced concrete short column of rectangular c/s			
		Design and detailing of reinforced concrete		

		short column of circular c/s		
11	Design of short column subjected to axial load with uniaxial bending			
	Design of short column subjected to axial load with biaxial bending			
		Design of short column subjected to axial load with biaxial bending		
12	Design and detailing of reinforced concrete isolated square foundation			
	Design and detailing of reinforced concrete isolated rectangular foundation			
		Design and detailing of reinforced concrete combined footing		
	Design and detailing of reinforced concrete combined footing			Assignment3: Numerical on Design of combined footing
13	Design and detailing of reinforced concrete combined footing			
		Design and detailing of reinforced concrete combined footing		
14	Design and detailing of reinforced concrete pile foundation			
	Design and detailing of reinforced concrete pile foundation			

## B. Daily Lesson Plan

Lecture	TOPIC/UNIT/ CHAPTER	Plan date	Execution date	Details of home work/assignment/mini project/ICT used/other	Details of topics that are beyond syllabus (if any)	Remarks
1	Introduction: principles of design	18-08-2020	18-08-2020			

	of reinforced concrete members-working stress and limit state method of design					
2	Working stress method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force	<b>19-08-2020</b>	<b>19-08-2020</b>			
3	Balanced, under reinforced and over reinforced sections	<b>21-08-2020</b>	<b>21-08-2020</b>			
4	Design of singly reinforced section	<b>24-08-2020</b>	<b>24-08-2020</b>			
5	Design of doubly reinforced section	<b>25-08-2020</b>	<b>25-08-2020</b>			
6	Limit state method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force	<b>26-08-2020</b>	<b>26-08-2020</b>			
7	Limit state method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force	<b>27-08-2020</b>	<b>27-08-2020</b>			
8	Concept of bond stress	<b>31-08-2020</b>	<b>31-08-2020</b>			
9	Concept of development length	<b>01-09-2020</b>	<b>01-09-2020</b>			
10	Use of design aids for reinforced concrete (SP:16)	<b>03-09-2020</b>	<b>03-09-2020</b>			
11	Use of design aids for reinforced concrete (SP:16)	<b>04-09-2020</b>	<b>04-09-2020</b>			
12	Use of design aids for reinforced concrete (SP:16)	<b>08-09-2020</b>	<b>08-09-2020</b>			
13	Beam design by LSM: Analysis, design and detailing of singly reinforced rectangular beam	<b>10-09-2020</b>	<b>10-09-2020</b>			
14	Analysis, design and detailing of singly reinforced T beam	<b>14-09-2020</b>	<b>14-09-2020</b>			
15	Analysis, design and detailing of singly	<b>21-09-2020</b>	<b>21-09-2020</b>			

	reinforced L beam					
16	Analysis, design and detailing of doubly reinforced beam sections	<b>24-09-2020</b>	<b>24-09-2020</b>	Assignment1: Numerical on Design of doubly reinforced section		
17	Design and detailing of one way slab	<b>28-09-2020</b>	<b>28-09-2020</b>			
18	Design and detailing of two way slab	<b>01-10-2020</b>	<b>01-10-2020</b>			
19	Design and detailing of two way slab	<b>05-10-2020</b>	<b>05-10-2020</b>			
20	Design and detailing of continuous beams	<b>08-10-2020</b>	<b>08-10-2020</b>			
21	Design and detailing of continuous slab	<b>13-10-2020</b>	<b>13-10-2020</b>			
22	Design and detailing of continuous slab	<b>15-10-2020</b>	<b>15-10-2020</b>	Assignment2: Numerical on Design of continuous slab		
23	Design and detailing of reinforced concrete doglegged staircase	<b>20-10-2020</b>	<b>20-10-2020</b>			
24	Design and detailing of reinforced concrete short column of rectangular c/s	<b>04-11-2020</b>	<b>04-11-2020</b>			
25	Design and detailing of reinforced concrete short column of circular c/s	<b>25-11-2020</b>	<b>25-11-2020</b>			
26	Design of short column subjected to axial load with uniaxial bending	<b>30-11-2020</b>	<b>30-11-2020</b>			
27	Design of short column subjected to axial load with biaxial bending	<b>08-12-2020</b>	<b>08-12-2020</b>			
28	Design of short column subjected to axial load with biaxial bending	<b>11-12-2020</b>	<b>11-12-2020</b>			
29	Design and detailing of reinforced concrete isolated square foundation	<b>14-12-2020</b>	<b>14-12-2020</b>			
30	Design and detailing of reinforced concrete isolated rectangular foundation	<b>22-12-2020</b>	<b>22-12-2020</b>			
31	Design and detailing of reinforced concrete combined footing	<b>07-01-2021</b>	<b>07-01-2021</b>			
32	Design and detailing	<b>13-01-</b>	<b>13-01-2021</b>			

	of reinforced concrete combined footing	<b>2021</b>				
33	Design and detailing of reinforced concrete combined footing	<b>19-01-2021</b>	<b>19-01-2021</b>			
34	Design and detailing of reinforced concrete combined footing	<b>21-01-2021</b>	<b>21-01-2021</b>	Assignment3: Numerical on Design of combined footing		
35	Design and detailing of reinforced concrete pile foundation	<b>22-01-2021</b>	<b>22-01-2021</b>			
36	Design and detailing of reinforced concrete pile foundation	<b>28-01-2021</b>	<b>28-01-2021</b>			
37	REVISION	<b>10-02-2021</b>	<b>10-02-2021</b>			
38	REVISION	<b>20-02-2021</b>	<b>20-02-2021</b>			

<b>Tutorial</b>	<b>Tutorial No.</b>	<b>Plan date</b>	<b>Execution date</b>	<b>Remarks</b>
Design of doubly reinforced section	1	25-08-2020	25-08-2020	
Limit state method of design: Basic concepts and IS code provisions(IS 456-2000) for design against bending moment and shear force	2	27-08-2020	27-08-2020	
Use of design aids for reinforced concrete (SP:16)	3	04-09-2020	04-09-2020	
Analysis, design and detailing of singly reinforced T beam	4	14-09-2020	14-09-2020	
Analysis, design and detailing of doubly reinforced beam sections	5	24-09-2020	24-09-2020	
Design and detailing of two way slab	6	08-10-2020	08-10-2020	
Design and detailing of continuous slab	7	20-10-2020	20-10-2020	
Design and detailing of reinforced concrete doglegged staircase	8	30-11-2020	30-11-2020	
Design and detailing of reinforced concrete short column of circular c/s	9	14-12-2020	14-12-2020	
Design of short column subjected to axial load with biaxial bending	10	13-01-2021	13-01-2021	
Design and detailing of reinforced	11	19-01-2021	19-01-2021	

concrete combined footing				
Design and detailing of reinforced concrete combined footing	12	<b>22-01-2021</b>	<b>22-01-2021</b>	



## (x) Teaching Strategy / Method

### (xa) Strategy to support weak students

1. Conduction of extra classes during doubt clearing classes and free slots
2. Special attention towards the weaker students in the class to encourage them
3. Seminar session by the students

### (xb) Strategy to encourage bright students

1. Allowing them to help their fellow- mates in clearing the doubts
2. Encouraging them by giving them extra grace marks in internals for their regularity
3. Making them leaders for conduction of various team works

### (xc) Efforts to keep students engaged

1. Conduction of seminars by the students
2. Conduction of quizzes
3. Making them solve assignments on regular basis

## (XI) Analysis of Students performance in the course

### INTERNAL ASSESSMENT

### INTERNAL ASSESMENT RECORD

Subject with code: Design of RC Structures (CE(PC)501)

Semester : 5<sup>th</sup>

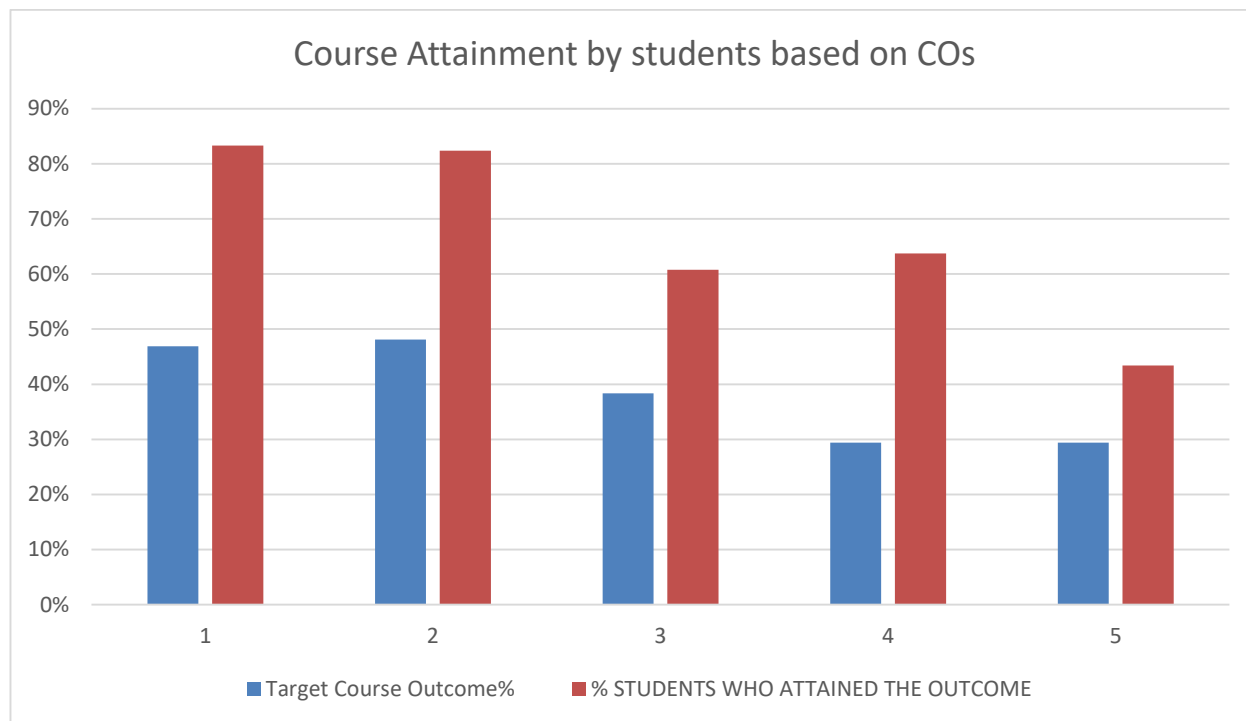
Discipline: CE

Sl.	Roll No.	Name	Attendance		Internal Examination			Assignment / Quiz	Total
			Total	Marks	1 <sup>st</sup>	2nd	Avg.		
1	11901318035	SWARAJ BISWAS	5	4	14	12.5	13.25	9	27
2	11901318036	SURAJIT BISWAS	5	4	11.5	10.5	11	7	22
3	11901318038	SOLANKI SINHA	5	5	12.5	12	12.25	8	26
4	11901318039	SNEHARTA ROY	5	3	10	10	10	6	19
5	11901318040	SHUVAM NAHA	5	5	14	13.5	13.75	9	28
6	11901318041	SHIVAM KUMAR	5	4	12	10.5	11.25	8	24
7	11901318042	RIBHU BISWAS	5	4	12.5	12.5	12.5	9	26
8	11901318043	RAJDEEP GHOSH	5	3	7	7	7	4	14

9	11901318044	PROTIK SAHA	5	3	11.5	11.5	11.5	10	25
10	11901318045	PRODYUT ROY	5	4	12	12	12	7	23
11	11901318046	PRATIKSHA PRADHAN	5	5	14.5	14.5	14.5	10	29.5
12	11901318047	MANAB ROY	5	4	9	9	9	6	19
13	11901318048	LOVE OJHA	5	5	11.5	11	11.25	9	26
14	11901318049	DIPAN NATH	5	3	7.5	7	7.25	4	15
15	11901318050	DIG BIJAY SHAHA	5	4	12	12	12	8	24
16	11901318051	BROJABIHARI DAS	5	4	11	10.5	10.75	7	22
17	11901318052	ASHIF IQUBAL	5	5	12.5	12	12.25	8	26
18	11901318053	ANUBRATA BARMAN	5	3	11.5	11	11.25	9	24
19	11901318054	ANINDYA MAHAPATRA	5	4	14	12.5	13.25	10	28
20	11901318055	AJAY KUMAR	5	3	11.5	11	11.25	8	23
21	11901319001	SOUMYADEEP SINGHA	5	4	12	11	11.5	8	23
22	11901319002	SUMAN DUTTA	5	5	12.5	12.5	12.5	10	28
23	11901319003	PINKU ROY	5	3	7	7	7	4	14
24	11901319004	BISWADIP SARKAR	5	3	10	10	10	6	19
25	11901319005	SHUBHADEEP DEY	5	5	12.5	12.5	12.5	10	27.5
26	11901319006	RANADITYA ROY	5	4	12.5	12.5	12.5	7	23.5
27	11901319007	SANGEETA SARKAR	5	4	11	11.5	11.25	8	24
28	11901319008	POUSHALI GHOSH	5	3	10	10	10	7	20
29	11901319009	ANKITA DUTTA	5	4	10	10	10	7	21
30	11901319010	NINGLAMU TAMANG	5	3	11.5	11.5	11.5	10	24.5
31	11901319011	ANAMIKA SARKAR	5	5	11	11	11	8	24
32	11901319012	NILADRI GHOSH	5	4	11	11	11	7	22
33	11901319013	SUBECHA RAI	5	5	13.5	13	13.25	10	28.5
34	11901319014	NIHAL ROUTH	5	5	14.5	14	14.25	10	29.5
35	11901319015	ESHITA GHOSH	5	4	10.5	10.5	10.5	8	22.5
36	11901319029	RWITWIKAS DAS	5	4	10.5	10.5	10.5	7	21.5
37	11901319030	SOUVIK MANDAL	5	3	6.5	6.5	6.5	4	14
38	11901319031	ARINDAM ROY	5	5	11.5	11.5	11.5	8	24.5
39	11901319032	NABENDU DEY	5	3	6.5	7	6.75	4	14
40	11901319034	PRATIMA BARMAN	5	3	6	6	6	4	13
41	11901319036	BISWAJIT DAS	5	5	9.5	9.5	9.5	6	20.5
42	11901319037	PARIJAT MAJUMDER	5	3	5	5	5	2	10
43	11901319039	SOUMIK DATTA	5	5	14	14	14	9	28
44	11901319040	ABHISHEK CHAKI	5	5	14	13.5	13.75	8	27
45	11901319041	MASOOB SARKAR	5	3	10	10	10	5	18
46	11901319043	SHUBHROJEET BASU	5	4	8	8	8	8	20
47	11901319044	PRITHIRAJ DEBNATH	5	5	14.5	14.5	14.5	10	29.5
48	11901319045	TIRTHANKAR SAHA	5	4	13.5	13.5	13.5	10	27.5
49	11901319046	CHAYAN BISWAS	5	3	10.5	10.5	10.5	6	19.5

50	11901319047	ABHIK CHOWDHURY	5	5	12.5	12.5	12.5	10	27.5
51	11901319048	INDRA KUMAR PRASAD	5	4	11.5	11.5	11.5	8	23.5

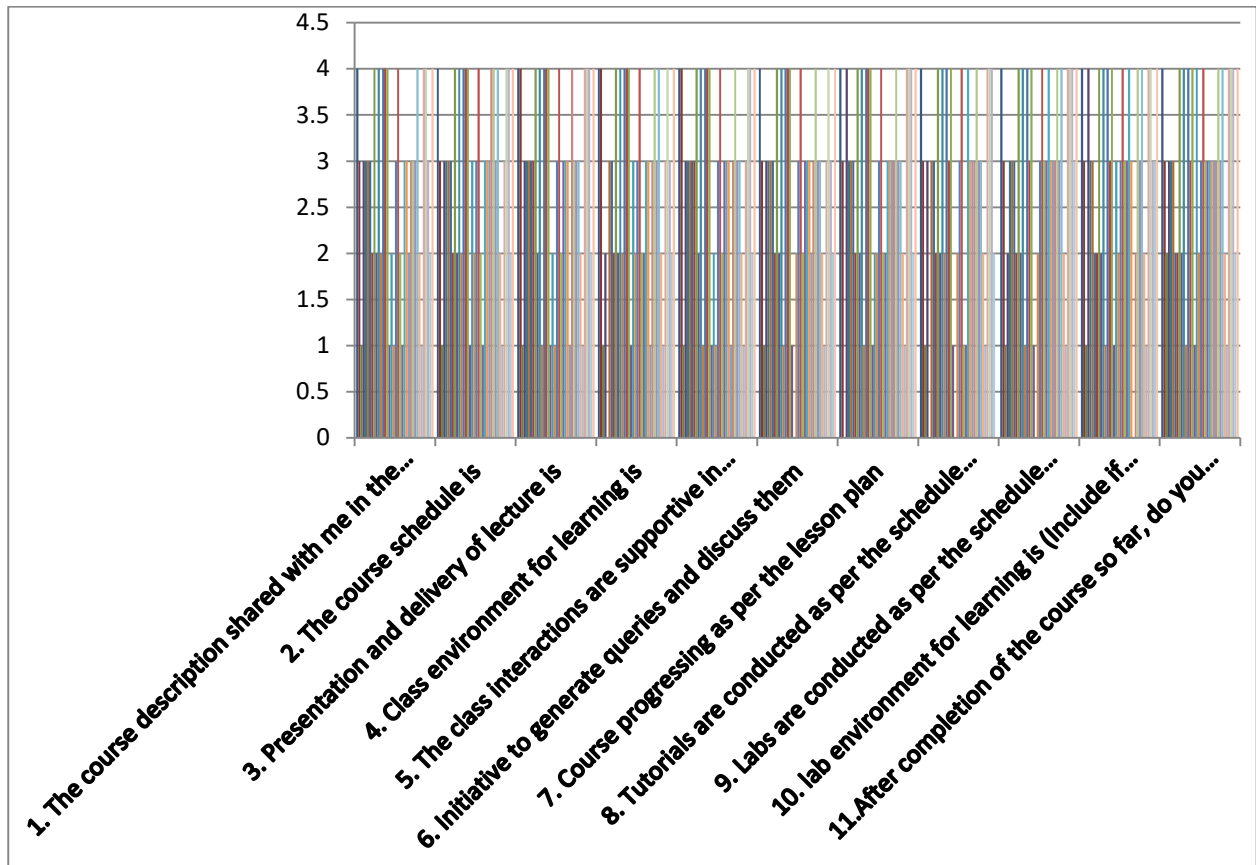
### (XI) Attainment Record



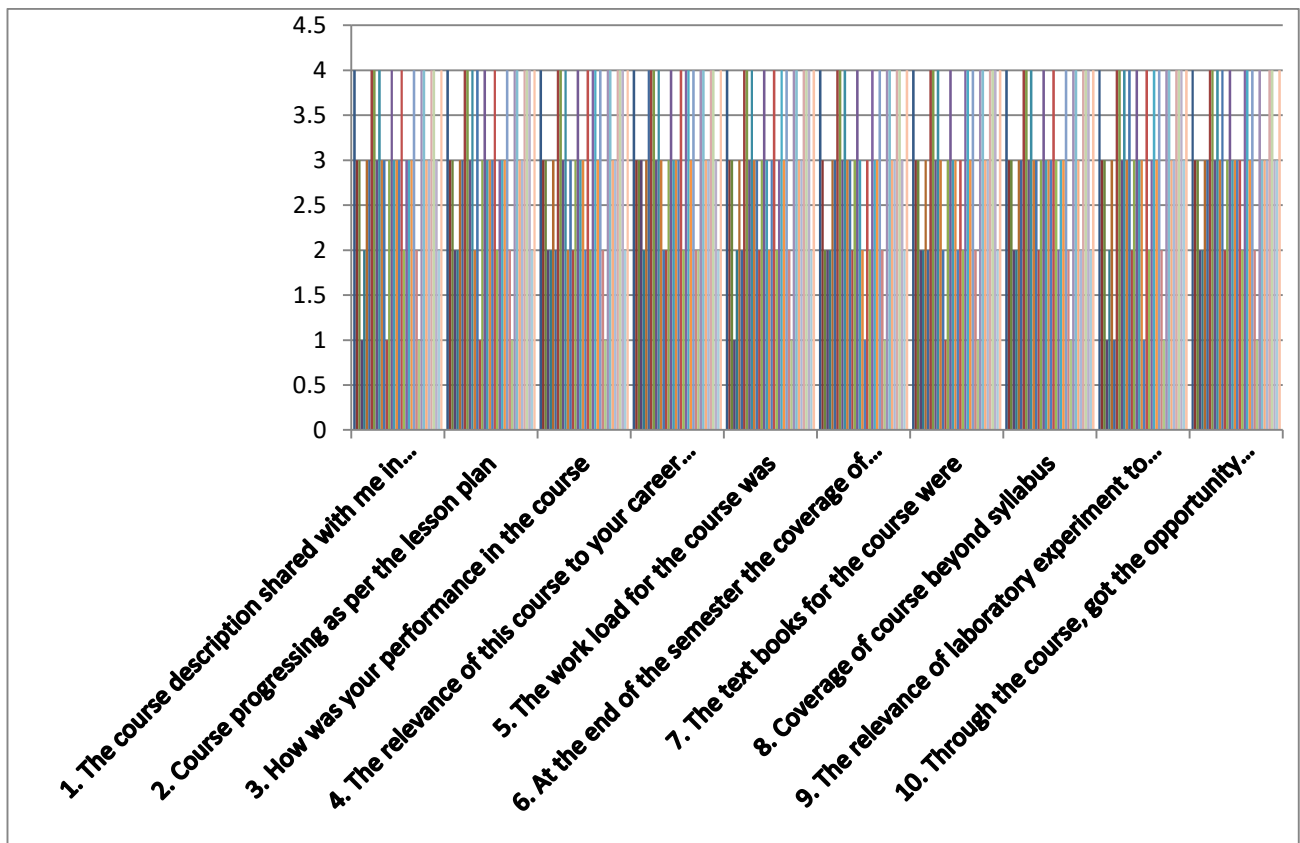
### (XII) University Result

### (XII) Analysis of Student Feed Back

**Formative feedback:**



### Summative feedback:



### **(XIII) Teacher Self-Assessment (at the completion of course)**

After completion of the course we observe the following

- (i) More classes related to CO5 is needed to improve the attainment
- (ii) Number of numerical to be solved in class should be increase to make the class more interactive
- (iii) More mock test should be conducted (specially online) to increase the numerical solving pace of the students.

# ATTENDANCE SHEET (Lecture)

**Subject with code: Design of RC Structures CE(PC)501**

**Semester : 5<sup>th</sup>**

**Discipline: CE**

Sl.	Roll No.	Name	18-08-2020	19-08-2020	21-08-2020	24-08-2020	25-08-2020	26-08-2020	27-08-2020	31-08-2020	01-09-2020	03-09-2020	04-09-2020	08-09-2020	10-09-2020	14-09-2020	21-09-2020	24-09-2020	28-09-2020	01-10-2020
1	11901318035	SWARAJ BISWAS	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P
2	11901318036	SURAJIT BISWAS	P	A	P	A	A	P	P	P	P	A	A	P	P	P	A	A	A	P
3	11901318038	SOLANKI SINHA	P	P	A	A	A	A	P	P	A	P	A	A	P	P	P	P	P	P
4	11901318039	SNEHARTA ROY	P	A	A	A	P	P	P	P	A	P	P	P	A	A	A	P	P	P
5	11901318040	SHUVAM NAHA	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	A
6	11901318041	SHIVAM KUMAR	A	P	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P	P
7	11901318042	RIBHU BISWAS	A	A	A	A	P	P	P	A	P	P	P	P	P	P	A	P	P	P
8	11901318043	RAJDEEP GHOSH	p	A	p	A	A	p	P	P	A	p	A	A	p	A	p	p	P	A
9	11901318044	PROTIK SAHA	A	P	P	P	P	A	A	P	A	A	P	A	P	P	A	P	P	A
10	11901318045	PRODYUT ROY	P	P	P	P	P	P	A	A	P	P	P	A	A	A	P	P	P	A
11	11901318046	PRATIKSHA PRADHAN	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P
12	11901318047	MANAB ROY	P	P	P	P	P	P	P	A	P	A	A	P	P	P	P	P	P	P
13	11901318048	LOVE OJHA	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	A
14	11901318049	DIPAN NATH	p	p	A	p	p	p	A	A	p	A	p	A	A	p	A	p	p	p
15	11901318050	DIG BIJAY SHAHA	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P
16	11901318051	BROJABIHARI DAS	P	P	A	A	P	A	P	P	A	P	A	A	P	P	P	P	P	P
17	11901318052	ASHIF IQUBAL	A	A	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	A
18	11901318053	ANUBRATA BARMAN	A	A	A	A	P	P	A	P	P	A	P	P	P	P	P	P	P	A
19	11901318054	ANINDYA MAHAPATRA	A	A	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P
20	11901318055	AJAY KUMAR	A	A	P	P	P	P	A	A	P	P	P	A	A	P	P	P	A	P
21	11901319001	SOUMYADEEP SINGHA	P	P	P	A	A	A	P	P	A	P	P	P	P	P	P	P	A	P
22	11901319002	SUMAN DUTTA	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P	P	P	P
23	11901319003	PINKU ROY	A	p	p	p	A	p	A	p	A	A	p	p	p	A	A	A	p	p
24	11901319004	BISWADIP SARKAR	P	A	A	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P

Sl.	Roll No.	Name	05-10-2020	08-10-2020	13-10-2020	15-10-2020	20-10-2020	04-11-2020	25-11-2020	30-11-2020	08-12-2020	11-12-2020	14-12-2020	22-12-2020	07-01-2021	13-01-2021	19-01-2021	21-01-2021	22-01-2021	28-01-2021
1	11901318035	SWARAJ BISWAS	P	P	P	P	P	A	P	P	A	A	P	P	P	P	P	P	P	P
2	11901318036	SURAJIT BISWAS	P	P	P	A	P	P	A	P	P	P	P	P	A	A	P	P	P	P
3	11901318038	SOLANKI SINHA	A	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P
4	11901318039	SNEHARTA ROY	P	P	P	A	A	A	P	P	P	A	P	P	P	P	A	P	P	P
5	11901318040	SHUVAM NAHA	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P
6	11901318041	SHIVAM KUMAR	P	P	A	A	A	A	P	P	P	P	P	P	P	P	P	P	P	P
7	11901318042	RIBHU BISWAS	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
8	11901318043	RAJDEEP GHOSH	p	A	A	p	A	p	A	A	A	A	p	p	p	A	A	A	P	p
9	11901318044	PROTIK SAHA	A	P	A	P	P	P	A	A	P	A	A	P	A	P	A	P	A	P
10	11901318045	PRODYUT ROY	A	A	A	A	A	P	P	P	P	P	P	A	A	P	P	P	P	P
11	11901318046	PRATIKA PRADHAN	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P
12	11901318047	MANAB ROY	A	P	A	P	P	A	A	A	P	P	P	P	P	P	P	P	P	A
13	11901318048	LOVE OJHA	P	P	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P	P
14	11901318049	DIPAN NATH	A	A	A	p	p	P	A	A	A	A	P	P	A	A	A	A	A	A
15	11901318050	DIG BIJAY SHAHA	P	P	P	P	P	A	P	P	A	A	P	P	P	P	P	P	P	P
16	11901318051	BROJABIHARI DAS	A	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	A
17	11901318052	ASHIF IQUBAL	P	P	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P	P
18	11901318053	ANUBRATA BARMAN	P	P	P	P	P	A	A	P	P	P	P	P	A	P	P	P	P	P
19	11901318054	ANINDYA MAHAPATRA	P	P	A	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P
20	11901318055	AJAY KUMAR	P	P	P	P	P	A	P	P	P	P	P	A	A	A	P	P	P	P
21	11901319001	SOUMYADEEP SINGHA	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P
22	11901319002	SUMAN DUTTA	A	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	A	P
23	11901319003	PINKU ROY	p	A	A	P	p	A	A	p	p	p	A	p	A	p	A	A	p	p
24	11901319004	BISWADIP SARKAR	P	P	A	P	A	A	P	P	P	P	P	A	A	A	P	P	P	P





## ATTENDANCE SHEET (Lecture)

**Subject with code: Design of RC Structures CE(PC)501**

**Semester : 5<sup>th</sup>**

**Discipline: CE**

Sl.	Roll No.	Name	18-08-2020	19-08-2020	21-08-2020	24-08-2020	25-08-2020	26-08-2020	27-08-2020	31-08-2020	01-09-2020	03-09-2020	04-09-2020	08-09-2020	10-09-2020	14-09-2020	21-09-2020	24-09-2020	28-09-2020	01-10-2020	
25	11901319005	SHUBHADEEP DEY	A	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A
26	11901319006	RANADITYA ROY	P	P	P	P	A	P	P	A	P	P	A	P	P	P	P	P	P	P	A
27	11901319007	SANGEETA SARKAR	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	
28	11901319008	POUSHALI GHOSH	P	P	P	A	A	A	P	P	A	P	P	P	P	P	P	P	A	P	
29	11901319009	ANKITA DUTTA	P	P	P	P	A	P	P	P	P	P	P	P	A	A	P	P	P	P	
30	11901319010	NINGLAMU TAMANG	A	A	A	A	A	P	P	A	P	P	A	A	P	P	P	A	P	P	
31	11901319011	ANAMIKA SARKAR	A	P	P	P	A	P	P	P	A	P	A	P	A	A	P	A	P	P	
32	11901319012	NILADRI GHOSH	P	P	P	A	A	A	P	P	A	A	A	P	A	P	P	P	P	P	
33	11901319013	SUBECHA RAI	A	A	A	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	
34	11901319014	NIHAL ROUTH	A	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	
35	11901319015	ESHITA GHOSH	A	A	P	P	A	A	A	P	A	A	P	P	P	P	P	A	P	P	
36	11901319029	RWITWIKA DAS	P	P	A	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	
37	11901319030	SOUVIK MANDAL	p	p	A	A	p	p	p	p	P	A	p	A	p	A	A	p	p	A	
38	11901319031	ARINDAM ROY	A	A	P	P	P	P	P	A	A	A	A	P	P	P	P	P	P	P	
39	11901319032	NABENDU DEY	A	p	p	p	A	A	p	A	p	A	p	p	p	A	A	A	p	p	
40	11901319034	PRATIMA BARMAN	p	p	p	p	p	A	A	A	p	p	A	A	A	p	P	A	A	p	
41	11901319036	BISWAJIT DAS	A	P	P	P	A	A	P	P	A	P	A	P	A	A	P	A	P	P	
42	11901319037	PARIJAT MAJUMDER	p	p	p	A	A	A	p	p	p	p	A	A	p	A	p	p	p	A	
43	11901319039	SOUMIK DATTA	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	
44	11901319040	ABHISHEK CHAKI	A	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	
45	11901319041	MASOOB SARKAR	A	P	P	P	A	A	P	P	A	P	A	P	A	A	P	P	P	P	
46	11901319043	SHUBHROJEET BASU	p	p	p	p	p	P	A	p	P	A	A	p	P	p	p	A	P	p	
47	11901319044	PRITHIRAJ DEBNATH	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	
48	11901319045	TIRTHANKAR SAHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
49	11901319046	CHAYAN BISWAS	p	p	p	P	A	A	p	A	p	A	A	A	A	A	P	P	P	P	
50	11901319047	ABHIK CHOWDHURY	A	P	P	P	A	P	P	P	A	P	A	P	A	A	P	A	P	P	
51	11901319048	INDRA KUMAR PRASAD	A	A	A	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	

Sl.	Roll No.	Name	05-10-2020	08-10-2020	13-10-2020	15-10-2020	20-10-2020	04-11-2020	25-11-2020	30-11-2020	08-12-2020	11-12-2020	14-12-2020	22-12-2020	07-01-2021	13-01-2021	19-01-2021	21-01-2021	22-01-2021	28-01-2021
25	11901319005	SHUBHADEEP DEY	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	A	P	P
26	11901319006	RANADITYA ROY	P	P	P	P	P	A	A	A	P	P	P	P	P	P	P	P	P	A
27	11901319007	SANGEETA SARKAR	P	P	P	P	P	A	P	P	A	A	P	P	P	P	P	P	P	P
28	11901319008	POUSHALI GHOSH	P	P	P	P	P	P	P	A	P	A	A	P	P	P	P	P	P	A
29	11901319009	ANKITA DUTTA	P	P	P	A	P	A	P	P	A	A	A	P	P	P	P	P	P	P
30	11901319010	NINGLAMU TAMANG	P	P	P	P	A	P	P	P	P	P	A	A	P	P	P	A	P	P
31	11901319011	ANAMIKA SARKAR	A	P	P	A	A	P	A	P	P	P	P	P	A	P	P	P	P	P
32	11901319012	NILADRI GHOSH	P	P	P	P	P	P	P	A	A	A	A	P	P	P	P	P	P	P
33	11901319013	SUBECHA RAI	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P
34	11901319014	NIHAL ROUTH	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
35	11901319015	ESHITA GHOSH	P	P	P	A	A	A	P	P	P	P	P	A	A	P	P	P	P	P
36	11901319029	RWITWIKA DAS	P	P	A	A	A	P	A	P	P	P	P	A	P	P	P	P	A	P
37	11901319030	SOUVIK MANDAL	A	A	A	p	p	p	A	A	P	p	p	A	A	p	A	p	A	p
38	11901319031	ARINDAM ROY	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	A	P	P
39	11901319032	NABENDU DEY	A	A	A	A	A	p	p	p	A	A	p	A	p	A	p	A	A	p
40	11901319034	PRATIMA BARMAN	A	p	A	A	A	A	p	p	p	P	A	p	p	A	A	A	A	A
41	11901319036	BISWAJIT DAS	A	P	P	A	A	P	A	P	P	P	P	P	P	P	P	P	P	P
42	11901319037	PARIJAT MAJUMDER	A	A	p	p	A	A	A	p	p	A	A	A	p	A	A	A	p	p
43	11901319039	SOUMIK DATTA	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P
44	11901319040	ABHISHEK CHAKI	A	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P
45	11901319041	MASOOB SARKAR	P	P	A	P	P	P	P	P	A	A	P	P	P	A	P	P	P	A
46	11901319043	SHUBHROJEET BASU	A	p	A	p	p	p	A	A	A	P	P	P	A	P	A	P	P	P
47	11901319044	PRITHIRAJ DEBNATH	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
48	11901319045	TIRTHANKAR SAHA	P	P	A	P	A	P	A	P	P	P	P	A	P	P	P	P	A	P
49	11901319046	CHAYAN BISWAS	P	P	A	p	A	A	P	P	P	P	P	A	A	A	A	P	P	P
50	11901319047	ABHIK CHOWDHURY	A	P	P	A	A	P	A	P	P	P	P	P	A	P	P	P	P	P
51	11901319048	INDRA KUMAR PRASAD	P	P	P	P	P	P	A	P	P	P	A	P	P	A	P	P	P	P



