

**SAMANTA CHANDRASEKHAR INSTITUTE
OF TECHNOLOGY AND MANAGEMENT**
SEMILIGUDA - 764 036



DEPT. OF CIVIL ENGINEERING

ATTENDANCE REGISTER

SESSION 2023-24

Name : ABNOR HIAL

Designation : LECTURER

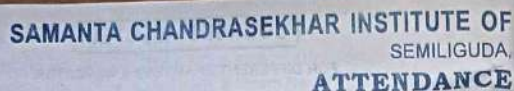
Dept. : CIVIL ENGINEERING

Abnor Hial
Signature

COURSES ALLOTTED

FOR DIFFERENT BRANCHES & SEMESTER

Semester	Course No.	Course Title	Page No.
4th	Th-1	structural design	01-04
6th	Th-2	construction management	05-08
6th	Th-4(a)	concrete Technology	09-12



Section

		Class	Section																			
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F22030001001	Aarush Garada	1	2	3	4	5	6	7	8	A	9	10	A	11	12	13	14	15	16	17	18	19
F22030001002	Abhi Khilla	A	1	2	3	4	5	6	7	8	9	A	10	11	12	13	14	A	15	16	17	18
F22030001003	Anjali Khilla	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001004	Basanti Pangri	1	2	3	4	5	6	7	A	8	9	10	A	11	12	13	14	15	16	17	18	19
F22030001005	Bhagat Khosla	1	2	3	4	5	6	7	A	8	9	10	11	12	13	14	15	16	17	18	19	20
F22030001006	Bharata Khillo	1	2	3	A	4	5	6	7	8	9	10	11	12	13	14	15	A	16	17	18	19
F22030001007	Brarati Chopadi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001009	Chintu Khilla	1	2	3	4	5	6	7	A	8	9	10	11	A	12	13	14	15	16	17	18	19
F22030001010	Daitary Khara	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F22030001011	Dulca Modi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001012	Ganesh Khosla	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001013	Jakin Mandingi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001014	Jamuna Khillo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001015	Jogendra Tangi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001016	Kaba Mayhi	1	2	3	4	5	6	7	A	8	9	10	11	12	13	14	15	16	17	18	19	20
F22030001017	Lovely Khillo	1	2	3	4	5	6	7	8	9	A	10	11	12	13	14	15	16	17	18	19	20
F22030001018	Maheswar Gurtha	A	1	2	3	4	5	A	6	7	8	9	10	11	12	A	13	14	15	16	17	18
F22030001019	Manoj Kumar Patra	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001020	Manoj Kumar Rudhi	1	2	3	4	5	6	7	8	9	A	10	11	12	13	14	15	16	17	18	19	20
F22030001021	Mini Hantal	1	2	A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F22030001022	Muna Gurtha	1	2	3	4	A	5	6	A	7	8	9	10	11	12	13	14	15	16	17	18	19
F22030001025	Parasuram Khara	1	2	3	A	A	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F22030001026	Prati Hwal	1	2	3	4	A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F22030001027	Rupanjali Mallary	1	2	3	A	A	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F22030001028	R crandan	1	2	A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F22030001030	Ranjita Tentulipadia	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	A	20
F22030001031	Rashmi Mari	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	A	16	17	18	19	20
No. of Present																						
Signature of Faculty Member																						
Date:																						

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Session: 2023-24

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**SAMANTA CHANDRASEKHAR INSTITUTE OF
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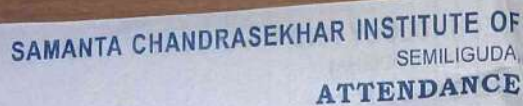
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F2203000101	Abhi Khilla	46	47	48	49	50	51	52	53	A	54	55	56	57	A	58	59	60	A	61	62
F2203000102	Anjali Khilla	50	51	52	53	54	55	A	56	A	57	58	59	60	A	61	62	63	64	65	
F2203000104	Basanti Pangi	47	48	49	50	51	52	53	54	55	56	57	A	58	59	60	61	62	63	64	A
F2203000105	Bhagat Khosla	49	50	A	51	52	53	54	55	56	57	A	58	59	60	A	61	62	63	64	A
F2203000106	Bharata Khilla	47	48	49	50	51	52	53	54	55	A	56	57	58	59	60	61	62	63	64	65
F2203000107	Bharati Chapadi	48	49	50	51	52	53	54	55	56	57	58	59	60	A	61	62	A	63	64	
F2203000108	Chintu Khilla	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
F2203000109	Daitary Khara	47	48	49	A	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
F2203000110	Dula Maoli	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
F2203000111	Ganesh Khosla	51	52	53	A	54	55	A	56	A	57	58	59	A	60	A	61	A			
F2203000112	Jatin Mandangi	48	49	50	51	52	53	54	55	56	57	58	A	59	60	A	61	62	A		
F2203000113	Jamuna Khilla	51	A	A	A	52	53	54	A	55	A	A	56	57	58	59	A	60	A		
F2203000114	Jagendra Tangi	46	A	A	A	48	49	50	51	52	53	54	55	56	57	58	59	A	60	A	
F2203000115	Laba Majhi	49	A	50	51	52	53	54	55	56	57	58	59	60	A	61	62	63	64	A	A
F2203000116	Lowly Khillo	47	48	49	A	50	51	52	53	A	54	55	56	57	58	59	60	A	A	A	
F2203000117	Maheshwar Muntha	45	A	A	A	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
F2203000118	Manoj Kumar Patra	48	49	50	51	52	53	54	55	56	57	A	58	59	60	61	62	63	A	A	
F2203000119	Manoj Kumar Ruchi	48	A	A	A	A	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
F2203000120	Mini Hantai	48	49	50	51	A	52	53	54	55	56	57	58	59	60	A	61	62	A	A	
F2203000121	Muna Muntha	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	A	64
F2203000122	Parsuram Muntha	45	A	A	A	46	47	48	49	50	51	A	52	A	53	54	55	56	57	58	A
F2203000123	Priya Hra	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	A	60	61	
F2203000124	Puspantoli Kholary	47	48	49	50	A	51	52	53	54	A	55	56	57	58	A	59	60	A	A	
F2203000125	R Chandan	46	47	48	49	50	51	52	53	54	55	56	A	57	58	59	60	A	61	A	A
F2203000126	Ranjita Tentulipadia	47	48	49	50	51	52	53	54	A	55	56	57	58	59	60	A	61	62	63	A
F2203000127	Rushmi Mari	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	A	A
No. of Present																					
Signature of Faculty Member																					
Date:																					

**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)
REGISTER**

Session :

Subject Structural Design-I

Subject																														Date																				% of Attendance
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Class		Section																			
Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010351	Rashmi Chhapadi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010352	Rathnakar Machha	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010353	Rohit Khillo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010354	Rukmani Jari	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010355	Rupali Khora	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010356	Sambor Mandingi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010357	Samir Mahanandia	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010358	Santi Missing	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010359	Sarbu Pujari	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010360	Sasmita Dami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010361	Sukanta Muthi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010362	Suman Bangari	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010363	Suman Hantol	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010364	Susmita Hantol	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010365	Swati Sethy	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010366	Trilobhan Jari	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010367	Trinath Khara	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010368	Tulasi Bnoi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010369	Vedhaba Muduli	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010370	Urmila Majhi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010371	Alay Guntha	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010372	Debdendra Khara	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010373	Napari prasadi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010374	Srikant Kuilong	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010375	Tapini Takri	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F220300010376	Vishal Sarkar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Signature of Faculty Member																					
Date:																					

TECHNOLOGY AND MANAGEMENT (SCITM)
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**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA
ATTENDANCE**

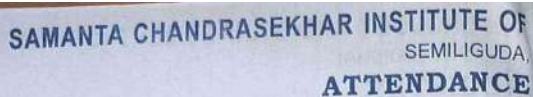
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F2203000032	Rashmi Choudadi	A	46	47	48	49	50	51	52	53	54	55	56	57	A	58	59	60	A	61	62
F2203000033	Ratnakar Muchha	48	A	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	67
F2203000034	Rohit Khilui	47	48	49	A	50	51	52	53	A	54	55	56	57	A	58	59	60	A	61	
F2203000035	Rukmani Jari	45	46	47	48	49	50	A	51	52	53	54	55	56	57	58	59	60	A	61	
F2203000036	Rupali Khora	45	A	46	47	48	49	50	51	52	53	A	A	54	55	56	57	58	A	59	
F2203000037	Sameer Mandangi	45	46	A	47	48	A	49	50	A	51	52	53	54	A	55	56	57	A	A	58
F2203000038	Samir Mahanandia	46	47	48	A	49	50	51	52	53	54	55	56	A	57	58	59	60	61	62	63
F2203000040	Sangita Sisa	45	A	A	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	A
F2203000041	Santi missing	47	A	48	49	50	51	52	53	54	55	56	A	57	58	59	A	60	A	61	A
F2203000042	Sarbu pujari	45	A	46	47	48	A	49	50	51	52	53	54	55	56	57	58	59	A	60	A
F2203000043	Sasmita Dami	47	A	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	A
F2203000044	sukanta madhi	49	50	A	A	A	A	51	52	53	54	A	55	A	56	A	57	58	A	59	A
F2203000045	suman bangari	48	49	50	51	52	53	54	55	56	57	58	59	A	60	61	A	A	62	63	A
F2203000046	suman hantol	49	50	51	52	53	54	55	56	57	58	59	A	60	61	62	A	63	64	65	A
F2203000047	susmita hantol	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	A	62	63	64	65
F2203000048	swati sethy	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60	A	61	62	A	63
F2203000049	Trilochan Jari	46	47	48	49	50	51	52	53	54	55	56	A	A	57	58	59	A	60	A	A
F2203000050	Trimath khara	47	A	A	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60	A	A
F2203000051	Tulasi Bha	49	49	50	51	52	53	54	55	56	57	58	59	A	A	60	61	62	A	63	A
F2203000052	Vadhaba muduli	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60	A	A
F2203000053	Urmila Majhi	47	A	48	49	50	A	51	52	53	54	55	56	57	A	A	58	59	60	A	A
F2203000054	Ajay Bhantha	48	49	50	A	51	52	53	54	55	56	57	58	59	60	A	61	62	63	A	64
F2203000055	pelendra khora	44	A	45	46	47	48	49	A	50	A	51	52	A	53	A	54	55	56	57	58
F2203000056	Napari prasad	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	A	A	61	62
F2203000057	Srikanta Kulong	48	49	A	50	51	52	53	54	55	56	57	58	59	60	A	61	62	63	64	
F2203000058	Tapan Takri	46	A	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	65
F2203000059	Vishal Sarkar	46	A	A	47	48	49	50	A	51	52	53	A	54	A	55	56	A	57	A	58
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Signature of Faculty Member		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Date:		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43

**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)
REGISTER**

Session : 2023-24

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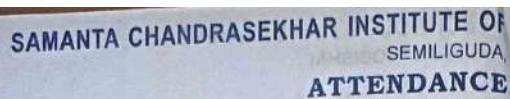
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F21030001002	Bibek Saunta	A	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	16	17	18
F21030001004	Biswanath Jani	1	A	2	3	4	5	6	7	8	9	10	A	A	11	12	13	14	15	16	17
F21030001005	Baxi Jani	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001007	Chandini Mayhi	1	2	3	4	5	6	7	8	9	A	10	11	A	12	A	13	14	15	16	17
F21030001008	Damruddhar Jani	A	A	1	2	3	4	5	6	7	8	9	10	11	A	12	13	A	14	15	16
F21030001009	Dasaratba Khillo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001010	Devaki Chetty	1	2	3	4	5	A	A	6	7	8	9	10	11	A	12	13	14	15	16	17
F21030001011	Dipak Harijan	1	2	3	4	5	6	7	8	9	10	A	11	12	A	13	A	14	15	16	17
F21030001013	Geeta Chetty	1	2	A	3	4	5	6	A	7	8	9	A	10	11	12	13	14	15	16	17
F21030001016	Kubita Jani	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A	15	A	16	17
F21030001018	Kasturi Dora	1	A	2	3	4	A	5	A	6	7	8	9	10	11	12	13	14	15	16	17
F21030001020	Mahadeb Harijan	1	2	3	4	5	6	A	7	8	9	10	11	12	13	A	14	15	16	17	18
F21030001021	Masuma Kuldep	1	A	2	3	4	5	6	7	8	9	10	A	11	12	13	A	14	15	16	17
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F21030001024	Musuri Pangri	1	2	3	A	4	5	6	7	8	9	10	11	12	A	13	14	15	16	A	17
F21030001025	Nidhi Allang	1	A	2	3	4	5	6	A	7	8	9	10	11	12	13	14	A	15	A	16
F21030001027	Padlam Khura	1	2	A	3	A	4	5	6	7	8	9	10	11	A	12	13	14	A	15	A
F21030001030	Ramesh Khillo	A	1	2	3	4	5	A	6	7	8	A	9	10	11	A	12	13	14	A	15
F21030001032	Rinku Mashri	1	2	3	4	5	6	7	A	8	9	10	11	12	13	14	A	15	16	17	18
F21030001033	Sulman Khora	1	2	3	4	A	5	6	7	8	A	9	10	A	11	12	13	A	14	A	15
F21030001034	Sunda Saunta	1	A	2	3	4	5	A	6	7	8	9	10	11	A	12	13	14	15	A	16
F21030001035	Sandeep Manding	1	2	3	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17	18
F21030001036	Saraj Takri	1	2	3	4	5	6	7	8	9	A	10	A	11	12	13	14	15	A	16	17
F21030001038	Sonali Khora	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001039	Sumil Doria	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A	15	16	A	17	18
F21030001040	Sunil Kumar Nayak	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A	15	16	A	17	18
F21030001041	Sunil Santa	1	2	3	4	5	6	7	A	8	A	9	10	11	12	13	14	A	15	A	16
No. of Present																					
Signature of Faculty Member																					
Date:																					

REGISTER

Subject Construction management

Subject	Consistency																																																	% of Attendance
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Section.

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F21030001002	Bibek Saunra	40	41	42	43	44	45	46	47	48	49	50	A	51	52	53	54	55	56	57	58
F21030001003	Biswanath Jari	41	42	43	44	45	46	47	A	48	49	50	51	52	53	54	55	56	57	58	59
F21030001005	Boxi Jari	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
F21030001007	Chandini Mahto	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
F21030001008	Dumrudhar Jari	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
F21030001009	Dasarath Khillo	49	50	51	52	53	54	55	56	57	58	59	60	61	62	A	63	A	64	A	65
F21030001010	Devakibetty	40	41	42	43	44	45	46	47	48	A	49	50	51	52	53	54	55	56	57	58
F21050001011	Dipak Harijan	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	A	60
F21050001013	Gireeta Chetty	42	43	44	45	46	A	47	48	49	50	A	51	52	53	54	55	56	57	58	59
F21050001016	Kabita Jari	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
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F21030001020	Mahadeb Harijan	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
F21050001021	Masuma Kuldip	41	42	43	44	A	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
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F21030001025	Naghi Allang	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
F21030001027	Radam Khura	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
F21030001030	Ramesh Khura	39	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
F21030001032	Rinku Mahto	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
F21030001033	Sajman Khara	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
F21030001034	Sanika Saunra	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
F21030001035	Sandeep Manding	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	A	63
F21030001036	Sargi Jari	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
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F21050001041	Sunil Saunra	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
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Signature of Faculty Member																					
Date:																					

TECHNOLOGY AND MANAGEMENT (SCIM)
KORAPUT (ODISHA)
REGISTER

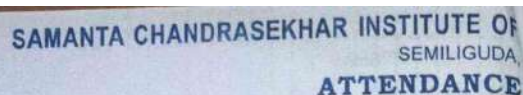
Session : 2023-24

Subject

Construction Management

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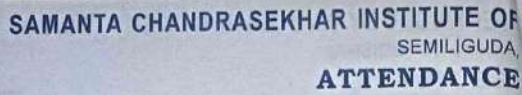
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Session : 2023-24

Construction Management

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Session : 2023-24

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**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

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F21030001001	Anil Khasia	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001002	Bibek Saunta	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001004	Biswanath Jani	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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F21030001007	Chandini Majhi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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F21030001010	Devaki Chetty	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001011	Dipak Harijan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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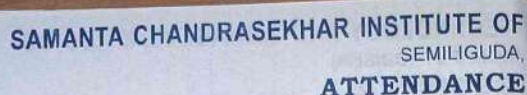
**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)**

REGISTER

Session: 2023-24

Subject: Concrete Technology

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ATTENDANCE

Class _____ Section _____

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F21030001004	Biswanath Jari	49	50	A	51	52	53	54	A	55	56	A	57	A	58	A	59	60	61	62	63
F21030001005	Baki Jari	50	A	51	52	A	53	A	54	55	A	56	57	58	A	59	60	A	61	A	A
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F21030001029	Ramesh Khillo	48	49	50	51	52	53	54	55	A	56	57	58	59	60	A	61	62	63	64	65
F21030001032	Rinku Majhi	49	49	50	51	A	52	53	54	55	56	A	57	A	58	59	60	61	A	62	A
F21030001033	Salman Khora	46	A	47	48	49	50	A	51	52	53	54	A	55	A	56	57	58	59	60	61
F21030001034	Sanda Saunta	47	48	49	50	51	52	53	54	55	56	57	58	59	60	A	61	62	63	64	65
F21030001035	Sandeep Manding	47	48	49	50	51	52	53	54	55	56	57	58	59	60	A	61	62	63	64	65
F21030001036	Sang Takri	47	A	48	49	50	51	52	53	54	55	56	57	58	A	59	60	61	62	A	63
F21030001038	Sonali Khora	49	50	51	A	52	53	54	55	A	56	57	58	59	60	A	61	62	63	A	64
F21030001039	Sumitra Doria	49	A	50	51	52	53	A	54	55	A	56	57	A	58	59	60	A	61	62	63
F21030001040	Sunil Kumar Nayak	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
F21030001041	Sunil Saunta	46	47	A	48	49	50	51	A	52	53	54	55	A	56	A	57	58	59	60	61
No. of Present																					
Signature of Faculty Member																					
Date:																					

Session: 2023-24

REGISTER
Subject Concrete Technology

Subject		Concrete Technology																				% of Attendance								
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
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																														87.1
																														90
																														87.1
																														90
																														88.5
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																														84.7
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																														87.1
																														92.8
																														90
																														91.4
																														90
																														88.5
																														87.1

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**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

Class _____ Section _____

Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001001	Akshaya Kumar Nayak	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001004	David Khilla	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001006	Kishore Maitha	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001007	Prabina Kumar Khilla	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001009	Ruka Guntha	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001010	Sabitri Dami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001011	Sandipta Banya	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001012	Sanjay Hantol	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001013	Sanjay Khara	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001014	Suresh Almag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. of Present		55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Signature of Faculty Member		24/12/21	25/12/21	26/12/21	27/12/21	28/12/21	29/12/21	30/12/21	31/12/21	1/1/22	2/1/22	3/1/22	4/1/22	5/1/22	6/1/22	7/1/22	8/1/22	9/1/22	10/1/22	11/1/22	12/1/22
Date:		24/12/21	25/12/21	26/12/21	27/12/21	28/12/21	29/12/21	30/12/21	31/12/21	1/1/22	2/1/22	3/1/22	4/1/22	5/1/22	6/1/22	7/1/22	8/1/22	9/1/22	10/1/22	11/1/22	12/1/22

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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	% of Attendance
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**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

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Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
122030001001	Akshaya Kumar Nayak	49	50	51	52	53	54	55	56	57	A	58	59	60	61	62	63	A	64	65	66
122030001004	David Khilla	45	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	A	60	61
122030001006	Kishore Maira	46	A	47	48	A	49	50	A	51	52	53	54	55	56	57	A	58	59	A	60
122030001007	Prabina Kumar Khilla	48	49	50	A	51	52	53	54	A	55	A	56	57	58	59	A	60	61	A	62
122030001009	Ruka Muntha	46	47	48	49	50	51	53	54	55	56	57	A	58	59	60	61	62	A	63	65
122030001010	Sabita Dami	47	A	48	49	50	A	51	52	A	53	54	55	A	56	57	58	A	59	60	A
122030001011	Sandipta Barua	42	A	43	44	45	A	46	47	A	48	A	49	50	51	52	53	A	54	55	
122030001012	Sanjay Hantol	42	43	44	45	46	47	48	49	50	51	52	53	54	55	A	56	57	58	59	61
122030001013	Sanjay Kharu	43	44	45	46	47	48	49	50	51	52	53	54	55	A	56	57	58	59	60	61
122030001014	Suresh Almag	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
No. of Present		55	42	50	52	48	51	47	47	48	48	47	47	44	48	46	48	48	47	49	47
Signature of Faculty Member																					
Date:		14-3-24	15-3-24	16-3-24	17-3-24	18-3-24	19-3-24	20-3-24	21-3-24	22-3-24	23-3-24	24-3-24	25-3-24	26-3-24	27-3-24	28-3-24	29-3-24	30-3-24	31-3-24	32-3-24	33-3-24

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																														94.2
																														87.1
																														85.7
																														88.5
																														92.8
																														85.7
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																														87.1
																														82.8

SAMANTA CHANDRASEKHAR INSTITUTE OF TECHNOLOGY AND MANAGEMENT

SEMILIGUDA - 764 036



DEPT. OF..... CIVIL ENGINEERING.....

ATTENDANCE REGISTER

SESSION..... 2023-24.....

Name : ABNOR HIAL

Designation : Lecturer

Dept. : CIVIL ENGINEERING

Abnor Hial
Signature

COURSES ALLOTTED

FOR DIFFERENT BRANCHES & SEMESTER

Semester Course No. Course Title Page No.

3rd Th-3 Building material
& construction Technology 01-04

5th Th-1 structural
Design-2 05-08

5th Th-5 Estimating &
costing valuation-2 08-12

5th PR-2 Estimating practice-2
(computer Aided) 13-14



SAMANTA CHANDRASEKHAR INSTITUTE OF SEMILUGUDA, ATTENDANCE

Section

Class

Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000100	AARUSH GARADA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000101	AGHI KHILLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000102	ANJALI KHILLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000103	BASANTI PANIGI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000104	BHARAT KHOSLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000105	BHARAT KHILLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000106	BHARATI CHAPRA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000107	CHINTU KHILLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000108	DAITARY KHARA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000109	DULA MADI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000110	GANESH KHOSLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000111	JAKIN MANDINGA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000112	JAMUNA KHILLO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000113	JOGENDRA TANGI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000114	LABA MAJHI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000115	LOVELY KHILLO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000116	MAHESWAR GUNTHA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000117	MANDI KUMAR PATRA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000118	MANDI KUMAR RUDHI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000119	MINI HANTAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000120	MUNA GUNTHA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000121	PANDI RAMACHANDRA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000122	PARSARAM KHARA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000123	PRITI HIAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000124	PUSPANTALI GOLLORY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000125	R CHANDAN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000126	RANJITA TENTULPADI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F2203000127	RASHMI MARI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. of Present																					
Signature of Faculty Member																					
Date:																					

TECHNOLOGY AND MANAGEMENT (SCITM) KORAPUT (ODISHA) REGISTER

Session : 2023-24

REGISTER		Building material and construction technology																														Session: 2023/2024			
Subject																																% of Attendance			
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
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15	16	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
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19	18	18	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
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19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50				
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**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

Class: 2023-24 Section: 01

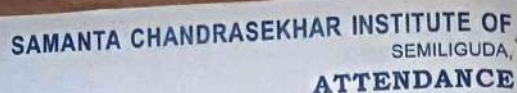
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F22030001001	ABRUSH GARADA	42	43	44	45	A	46	47	A	48	49	A	50	51	A	52	53	54	55	56	57
F22030001002	ABHI KHILLA	44	A	45	46	47	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60
F22030001003	ANJALI KHILLA	44	45	46	47	48	49	50	51	52	53	A	54	55	56	57	58	59	60	61	62
F22030001004	BASANTI PANGI	40	41	42	43	44	45	46	47	48	49	50	A	51	52	53	54	55	56	57	58
F22030001005	BHARAT KHOSLA	44	45	A	46	47	48	A	49	50	51	52	A	53	54	55	56	57	58	59	60
F22030001006	BHARAT KHILLO	44	45	46	47	48	A	49	50	51	52	53	54	55	56	57	58	59	60	61	62
F22030001007	BHARATI CHAPADI	A	50	51	52	A	53	54	55	56	A	57	58	59	A	60	61	62	63	64	65
F22030001008	CHINTU KHILLA	40	41	42	43	A	44	45	46	47	48	49	A	50	51	52	53	54	55	56	57
F22030001009	DAITARY KHARA	43	44	45	46	A	47	48	49	A	50	51	52	53	54	55	56	57	58	59	60
F22030001010	DULA MADI	44	A	45	46	47	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60
F22030001011	DULAL KHILLO	40	41	A	42	43	A	44	45	46	47	48	A	49	50	51	52	53	54	55	56
F22030001012	JAKIN MANDINGI	44	45	A	46	47	48	A	49	50	51	52	53	54	55	56	57	58	59	60	61
F22030001013	JAMUNA KHILLO	43	44	45	46	47	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60
F22030001014	JOSENDRA TANGI	43	44	45	A	46	47	48	A	49	50	51	52	53	54	55	56	57	58	59	60
F22030001015	LABA MAJHI	44	A	45	46	47	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60
F22030001016	LOVELY KHILLO	44	A	45	46	47	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60
F22030001017	MAHESWAR GUNTHA	45	46	A	47	48	49	A	50	51	52	53	54	A	55	56	57	58	59	60	61
F22030001018	MANOJ KUMAR PATRA	44	45	46	47	A	48	49	50	51	52	53	A	54	55	56	57	58	59	60	61
F22030001019	MANOJ KUMAR RUDHI	A	46	47	48	A	49	50	51	52	53	A	54	55	56	57	58	59	60	61	62
F22030001020	MINI HANTAL	42	43	A	44	45	46	47	48	49	50	51	52	53	A	54	55	56	57	58	59
F22030001021	MUNA GUNTHA	44	A	45	46	A	47	48	49	50	51	52	53	A	54	55	56	57	58	59	60
F22030001022	PANDI RAMACHANDRA	44	45	A	46	47	48	49	50	51	52	53	A	54	55	56	57	58	59	60	61
F22030001023	PARCARAM KHARA	45	46	47	48	49	50	51	52	53	54	A	55	56	57	58	59	60	61	62	63
F22030001024	PRITI HIAL	45	A	46	47	48	A	49	50	51	52	53	54	A	55	56	57	58	59	60	61
F22030001025	PUSPANTALI HOLLORY	46	47	48	49	50	51	52	53	A	54	55	56	57	58	59	60	61	62	63	64
F22030001026	R CHANDANI	41	A	42	43	A	44	45	46	47	48	A	49	50	51	52	53	54	55	56	57
F22030001027	RANJITA TENTUL MADI	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
F22030001028	RASHMI MARI	41	42	A	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
No. of Present																					
Signature of Faculty Member																					
Date:																					

**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)**

REGISTER

Session : 2023-24
Subject: Building material & construction Technology.

Subject																																																		% of Attendance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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F22030001022	RAKMITA CHAPADI	1	2	3	4	5	6	A	7	8	9	10	11	12	13	14	15	A	16	17	18	
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F21020001024	ROHIT KHILLO	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001025	RUKMANI JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	A	16	17	18	19	
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F22030001029	SANJATA SISA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001030	SANTI MISSINGI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001031	SARAJ PUJARI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001032	SARMITA DAMI	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001033	SUKANTA MADHI	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001034	SUMAN BANJARI	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001035	SUMAN HANTAL	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001036	SUSMITA HANTAL	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001037	SWATI SETHY	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001038	TRILCHAN JANI	A	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18
F22030001039	TRINATH KHARA	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
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F22030001041	UDHARA MUDULI	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001042	URMILA MAJHI	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001043	VIJAY SARKAR	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001044	VIJAY GUNTHA	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
F22030001045	DEBENDRA KHORA	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	A	16	17	18	
L23020001002	NAPERI PRASAD	1	A	2	3	4	5	6	7	A	8	9	10	A	11	12	13	14	A	15	16	
L23030001004	SRIKANT KUILONG	A	1	2	3	A	4	5	6	7	A	8	9	A	10	11	A	12	13	A	14	
L23030001005	TAPAN TAKRI	1	2	3	4	5	6	7	8	A	9	10	11	12	13	A	14	15	A	16	17	
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Signature of Faculty Member		[Signatures]																				
Date:		[Dates]																				

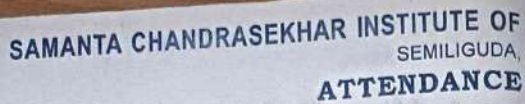
KORAPUT (ODISHA)

REGISTER

Session : 2023-24

REGISTER Session
Subject Building material & construction Technology

Subject																																																		% of Attendance
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19	10	21	22	23	A	24	25	26	27	28	29	30																																						



Class _____ Section _____

Class		Section																				
Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F22030001032	RASHMITA CHAPADI	43	48	A	44	58	A	51	52	53	A	54	55	A	56	57	A	58	59	A	60	
F22030001033	RATNAIKAR MAHHA	44	48	49	50	51	52	53	54	55	56	57	58	59	60	A	61	62	A	63	A	
F22030001034	ROHIT KHILLO	43	47	48	49	50	51	52	53	54	55	56	57	58	59	60	A	61	62	A	63	A
F22030001035	RUKMANI JANI	44	49	50	A	51	52	A	53	A	54	55	A	56	57	58	59	60	A	61	62	A
F22030001036	RUPELI KHORA	46	41	42	43	44	45	46	47	48	49	50	A	51	52	A	53	54	55	56	57	58
F22030001037	SAMEER MANDINGI	44	45	46	A	47	48	A	49	50	A	51	52	53	54	55	A	56	57	58	59	60
F22030001038	SAMIR MOHANANDIA	45	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A	61	62
F22030001039	SANGITA SIA	44	48	49	50	51	52	53	54	55	56	57	58	59	60	A	61	62	A	63	A	
F22030001040	SANTI MISSING	45	48	49	50	51	52	53	54	55	A	56	57	58	59	60	A	61	62	A	63	A
F22030001041	SANTI MISSING	44	45	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A	61
F22030001042	SARBU PUJARI	45	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A	61	62
F22030001043	SAKSHI DAMI	44	45	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A	61
F22030001044	SUKANTA MADHI	44	45	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A	61
F22030001045	SUMAN BANHARI	43	44	45	A	46	47	48	49	50	51	52	A	53	54	55	A	56	57	58	59	60
F22030001046	SUMAN HANTAL	45	46	47	48	49	50	51	52	53	54	55	A	56	57	58	59	60	A	61	62	A
F22030001047	SUSMITA HANTAL	44	45	A	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A
F22030001048	SWATI CETHY	44	45	A	46	47	48	49	50	A	51	52	53	54	55	A	56	57	58	59	60	A
F22030001049	TRILOCHAN JANI	39	40	41	A	42	43	44	A	45	46	A	47	48	49	50	51	52	53	54	55	56
F22030001050	TRINATH KHARA	43	44	45	46	47	A	48	49	50	A	51	52	A	53	54	55	A	56	57	58	59
F22030001051	TULASI BHOTI	41	A	42	43	A	44	45	A	46	47	A	48	49	A	50	51	A	52	53	54	55
F22030001052	UDDHARA MUDULI	A	42	43	44	45	A	46	A	47	48	49	A	50	51	A	52	53	54	55	56	57
F22030001053	URMILA MAJHI	40	41	A	42	A	43	44	A	45	A	46	47	48	49	50	51	52	53	54	55	56
F22030001054	VISHAL SARKAR	41	42	43	44	45	46	47	A	48	49	50	51	52	53	54	55	A	56	57	58	59
L23030001001	ATAY GUNTHA	39	40	A	41	42	A	43	44	A	45	A	46	47	48	49	50	51	52	53	54	55
L23030001002	DEBENPRA KHORA	41	42	43	44	45	46	47	A	48	49	50	51	52	53	54	55	A	56	57	58	59
L23030001003	NAPERI PRASAD	41	42	43	44	45	46	47	A	48	49	50	51	52	53	54	55	A	56	57	58	59
L23030001004	SRIKANT KUILONG	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	A	56	57	58
L23030001005	TAPAN TAKRI	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	A	56	57	58	59
AR		53	44	45	46	47	48	49	50	51	52	53	44	45	46	47	48	49	50	51	52	53
No. of Present		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Signature of Faculty Member		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Date:		5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23	5/11/23

REGISTER Session: 2023-24
Subject: Building material of construction Technology.

Subject	Biology	75	% of
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[illegible]



**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

Class: 1030001001 Section: 1

Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001001	ANIL KHOSLA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001002	ABEKA SAUNTA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001003	BISWANATH JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001004	BOXI JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001005	CHANDINI MAJHI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001006	DAMBARANATH JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001007	DASARATHA KHILLO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001008	DEVAKI CHETTY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001009	DIPAK HARIJAN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001010	GEETA CHETTY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001011	KABITA JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001012	KASTURI DORA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001013	MAHADEB HARIJAN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001014	MALUSUMA KULDEEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001015	MUNIA BARIK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001016	MUSURI PANGI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001017	NIDHI ALLANG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001018	PAVAN KHURA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001019	RAMESH KHILLO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001020	RINKU MAJHI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001021	SALMAN KHORA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001022	SANDA SAUNTA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001023	SANDEEP MANDING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001024	SARAJ TAKRI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001025	SONALI KHORA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001026	SUMITA DURA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001027	SUNIL KUMAR NAYAK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001028	SUNIL SANTA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. of Present																					
Signature of Faculty Member																					
Date:																					

**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)**

REGISTER

Session: 2023-24

Subject: Structural Design-2

Subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	% of Attendance								
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Section

Class

Class		Section																			
Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001001	Anil Khosla	43	A	44	45	A	46	47	48	A	49	50	A	51	52	A	53	54	55	A	56
F21030001002	BIBEK SAUNTA	41	42	43	44	45	A	46	47	48	49	50	51	A	52	53	A	54	55	A	56
F21030001004	BISWANATH JANI	43	44	A	45	46	47	48	A	49	50	A	51	52	A	53	54	55	A	56	57
F21030001005	BOXI JANI	42	43	44	45	A	46	47	48	A	49	50	A	51	52	A	53	54	55	A	56
F21030001007	CHANDINI MAJHI	43	A	44	45	46	47	48	49	A	50	51	52	A	53	54	55	A	56	57	58
F21030001008	DAMBARUCHAR JANI	29	40	41	42	A	43	44	45	A	46	47	48	A	49	50	51	52	53	54	55
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F21030001018	KASTURI DORA	39	40	41	42	A	43	44	45	A	46	47	48	A	49	50	51	52	53	54	55
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F21030001034	SANDA SAUNTA	41	42	43	A	44	45	A	46	47	48	A	49	50	A	51	52	A	53	54	55
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Signature of Faculty Member																					
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**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)**

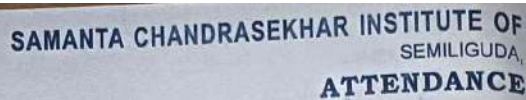
REGISTER

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Class: _____ Section: _____

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1L22030001011	SADIDIPTA BENYA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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Signature of Faculty Member																						
Date:																						



Section

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SAMANTA CHANDRASEKHAR INSTITUTE OF SEMILUGUDA, ATTENDANCE

Class _____ Section _____

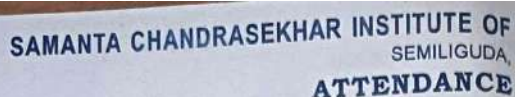
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F21030001002	RIPEK SAUNTA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001004	RIKUNATH JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001005	ROXI JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
F21030001007	CHANDINI MATHI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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No. of Present																					
Signature of Faculty Member																					
Date:																					

TECHNOLOGY AND MANAGEMENT (SCITM) KORAPUT (ODISHA) REGISTER

Session : 2023-24

Subject Estimation and cost evaluation-2

Project																															Date																			% of Attendance
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Section

Class		Section																				
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F21030001002	BIGER SAUNTA	45	46	A	47	48	49	A	50	51	A	52	53	A	54	55	56	A	57	58	59	
F21030001004	BISWANATH JANI	43	44	45	A	46	47	48	A	49	50	A	51	52	53	A	54	55	56	57	58	
F21030001005	BOXI JANI	41	42	A	43	44	45	A	46	47	48	49	50	51	A	52	53	A	54	55	56	57
F21030001007	CHANDINI MAJHI	44	45	46	47	A	48	49	A	50	51	A	52	53	A	54	55	A	56	57	58	
F21030001008	DAMBARUDHAR JANI	42	43	44	45	46	47	A	48	49	50	A	51	52	A	53	54	55	56	57	58	
F21030001009	DASARATHA KHILLO	41	42	43	A	44	45	46	47	A	48	49	50	51	52	53	A	54	55	56	57	
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F21030001011	DIPAK HALTAN	38	39	40	41	A	42	43	44	45	46	A	47	48	49	A	50	51	52	53	54	
F21030001012	GEETA CHETTY	45	A	46	47	48	A	49	50	51	A	52	53	A	54	55	A	56	57	58	59	
F21030001014	KABITA JANI	42	43	44	A	45	46	47	48	49	A	50	51	A	52	53	54	A	55	56	57	
F21030001018	KASTURI DORA	42	43	A	44	45	A	46	47	48	A	49	50	51	A	52	53	54	55	56	57	
F21030001020	MAHDEB HARIJAN	42	43	44	A	45	46	47	48	A	49	50	51	A	52	53	54	55	56	57	58	
F21030001021	MASUMA KULDEEP	40	41	42	43	A	44	45	46	47	48	A	49	50	51	A	52	53	54	55	56	
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F21030001030	RAMESH KHILLO	40	41	A	42	43	44	A	45	46	47	48	49	50	51	A	52	53	54	55	56	
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F21030001036	SAROT TAKRI	39	40	A	41	42	43	A	44	45	46	A	47	48	49	50	51	A	52	53	54	
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F21030001039	SUMITA DORIA	43	A	44	45	A	46	47	48	A	49	50	51	A	52	53	A	54	55	56	57	
F21030001040	SUNIL KUMAR NAYAK	40	41	42	43	44	A	45	46	47	A	48	49	50	51	A	52	53	54	55	56	
F21030001041	SUNIL - SANTA	42	43	A	44	45	A	46	47	48	A	49	50	51	A	52	53	54	55	56	57	
No. of Present																						
Signature of Faculty Member																						
Date:																						

TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)

REGISTER

Session : 2023-24

Subject Estimation & cost valuation-2

[illegible]



**SAMANTA CHANDRASEKHAR INSTITUTE OF
SEMILIGUDA,
ATTENDANCE**

Class: _____

Section: _____

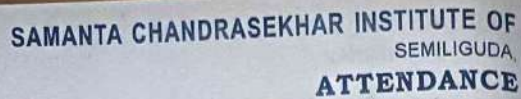
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L22030001003	DAVID KHILLA	1	2	3	4	5	6	7	A	8	9	10	11	12	13	A	14	15	16	17	18
L22030001004	HARI MUDALI	1	2	3	A	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17
L22030001006	KISHOR MAIRA	1	2	3	4	5	A	6	7	8	9	A	10	11	12	13	A	14	15	16	17
L22030001007	PRADINA KUMAR KHILLO	1	2	3	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17	18
L22030001009	ROKA GUNTHA	1	2	3	A	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17
L22030001010	SABITRI DAMI	1	2	3	4	A	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17
L22030001011	SANDIPTA BENYA	1	2	A	3	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17
L22030001012	SANJAY HANTAL	1	2	3	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17	18
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No. of Present		36	38	37	33	35	37	34	34	35	32	34	34	28	33	30	28	32	34	36	38
Signature of Faculty Member		[Signature]																			
Date:		11/03	16/03	18/03	19/03	21/03	24/03	25/03	26/03	28/03	30/03	31/03	1/04	4/04	7/04	8/04	9/04	10/04	11/04	12/04	13/04

**TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)
REGISTER**

Session : 2023-24

Subject: Estimation of cost valuation-2

Subject	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	% of Attendance
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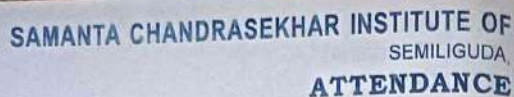


	Class	Section																			
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030001003	DAYID KHILLA	41	42	43	A	43	44	A	45	46	A	47	48	A	49	A	50	51	52	53	54
030001004	HARI MUDULI	43	44	A	45	46	A	47	48	49	50	51	52	53	A	54	55	A	56	57	58
030001006	KISHORE MAIRA	45	46	47	48	A	49	50	A	51	52	53	54	55	A	56	57	58	59	60	61
030001007	PABINA KUMAR KHILLU	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
030001009	RUKA GUNTHA	44	45	46	A	47	48	A	49	A	50	A	51	52	53	54	55	A	56	57	58
030001010	SABITRI DAMI	40	41	A	42	43	A	44	45	46	A	47	48	A	49	50	51	52	53	54	55
030001011	SANDIPTA BENYA	42	43	44	45	A	46	47	48	A	49	50	A	51	52	53	A	54	55	56	57
030001012	SANTAY HANTAL	43	44	A	45	46	A	47	48	49	A	50	51	A	52	53	54	55	56	57	58
030001013	SANTAY KHARA	43	44	45	A	46	47	A	48	49	50	A	51	52	53	A	54	55	56	57	58
030001014	SURESH ALMONGI	41	A	42	43	44	45	46	A	47	48	49	50	A	51	52	53	54	55	56	57
No. of Present		39	32	27	28	29	30	27	30	29	28	27	28	29	32	31	28	32	34	29	3
Signature of Faculty Member		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Date:		31-12	4-12	6-12	7-12	8-12	9-12	10-12	11-12	12-12	13-12	14-12	15-12	16-12	17-12	18-12	19-12	20-12	21-12	22-12	23-12

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[illegible]



Section

Class

Section

Roll No.	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
F21030001001	ANIL KHOSLA	1	2	3	A	4	5	6	A	7	8	9	10	A	11	12	13	14	15	A	16	
F21030001002	BIREK SAUNTA	1	2	3	4	5	6	7	8	A	9	10	11	A	12	A	13	A	14	A	15	16
F21030001004	BISWANATH JANI	1	2	3	4	5	6	A	8	9	10	A	11	12	13	A	14	15	16	A	17	
F21030001005	BOBI JANI	1	2	3	4	5	A	6	7	8	A	9	10	A	11	12	A	13	14	15	16	
F21030001007	CHANDINI MAJHI	1	2	3	4	5	6	7	8	A	9	10	11	12	13	A	14	15	16	17	18	
F21030001008	DANBARUDHAR JANI	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	A	15	A	16	17	
F21030001009	DIPRATH KHILLO	1	2	3	4	5	6	7	8	9	10	A	11	12	A	13	A	14	15	16	17	
F21030001010	DEVAKI CHETTY	1	2	3	4	5	6	7	8	A	9	10	11	12	13	A	14	15	16	17	18	
F21030001011	DIPAK HARIJAN	1	2	3	4	5	6	7	8	9	A	10	11	A	12	13	14	15	A	16	17	
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F21030001020	MAHADEB HARIJAN	1	2	3	4	5	6	7	8	9	A	10	11	A	12	13	A	14	15	A	16	
F21030001021	MAKUMA KULDEEP	1	2	3	4	A	5	6	A	7	8	9	10	11	A	12	13	14	15	16	17	
F21030001023	MUNA BARIK	1	2	3	4	5	6	7	8	A	9	10	11	A	12	13	14	15	16	17	18	
F21030001024	MUSURI PANGI	1	2	3	A	4	5	6	7	8	9	10	11	12	A	13	14	15	16	17	18	
F21030001025	NIDHI ALLANG	1	2	3	4	5	A	6	7	8	9	A	10	11	A	12	13	A	14	15	16	
F21030001027	PADAM KHURA	1	2	3	4	A	5	6	7	8	9	10	A	11	12	A	13	14	15	16	17	
F21030001030	PRAMESH KHILLO	1	2	3	4	5	6	7	8	9	10	11	12	A	13	A	14	15	A	16	17	
F21030001033	RINKU MAJHI	1	2	A	3	4	5	6	7	8	A	9	10	11	A	12	13	14	15	16	17	
F21030001033	SALMAN KHURA	1	2	3	A	4	5	6	7	8	9	A	10	11	12	13	A	14	15	16	17	
F21030001037	SANDA SAUNTA	1	2	3	4	5	6	7	8	9	10	11	A	12	13	A	14	15	16	17	18	
F21030001037	SANDEEP MANDINIG	1	2	3	4	5	6	7	8	9	10	11	12	A	13	14	15	16	17	18	19	
F21030001036	SAROT TAKRI	1	2	3	4	5	A	6	7	8	A	9	10	11	12	13	14	15	16	17	18	
F21030001038	SONALI KHORA	A	1	2	3	4	5	6	7	8	9	10	11	A	12	A	13	14	A	15	16	
F21030001039	SUMITA DORIA	1	2	3	4	5	A	6	7	8	9	10	11	12	13	14	A	15	16	A	17	
F21030001040	SUNIL KUMAR NAYAK	1	2	3	4	5	6	7	A	8	9	A	10	11	12	A	13	14	15	16	17	
F21030001041	SUNIL SANTA	1	2	3	A	4	5	6	7	8	A	9	10	11	12	13	14	15	16	17	18	

No. of Present

Signature of Faculty Member

Date:

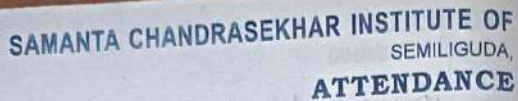
TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)

REGISTER

Session : 2023-24

Subject Estimating practice-2 (Computer Aided)

[illegible]

[illegible]

TECHNOLOGY AND MANAGEMENT (SCITM)
KORAPUT (ODISHA)

[illegible]

→ classification Rock

- ① neological classification
- ② physical classification
- ③ chemical classification

→ neological classification

- ① Igneous Rock
- ② Metamorphic Rock
- ③ Sedimentation Rock

→ Igneous Rock

- ① volcanic Rock
- ② Hypabyssal Rock
- ③ Plutonic Rock

Sedimentation Rock

Metamorphic Rock

Physical classification

- stratified Rock
- unstratified Rock
- foliated Rock

chemical classification

- silicious Rock → (strong) (ch) (chilico)
- argillaceous Rock
- calcareous Rock

Date = 01/08/24

- disintegrating - ଭେଙ୍ଗିବା)
- weather - (କାଗ)
- compressive - (ଢାଳିବା)
- strength
- arches
- pavements

use of stones

- ① stone uses for the construction of Residential & Public building
- ② construction of dams, weirs, harbors and abutment of bridges
- ③ use as metal & railway ballast
- ④ use in the aggregate for concrete
- ⑤ use in the form of veneers for decorative front & interior of buildings.

use of stones

- stone uses for the construction of Residential & Public building
- ② construction of dams, weirs harbors abutment of bridges
- ③ use as metal & railway ballast
- ④ use as aggregate for concrete.

3.9 CHARACTERISTICS OF GOOD BUILDING

STONE

A good building stone should have the following qualities

Appearance:-

For face work it should have fine compact texture; light-coloured stone is preferred as dark colour are likely to fade out in due course of time

Structure:-

A broken stone should not be dull in appearance and should have uniform texture free from cavities, cracks and patches of loose or soft material. Stratifications should not be visible to naked eye.

Strength:-

A stone should be strong and durable to withstand the disintegrating action of weather. Compressive strength of building stone in practice range between 60 to 200 N/mm²

Weight:- it is an indication of the porosity and density for stability of structures such as dams retaining walls etc.

heavier stones are required whereas for arches, vaults, domes, etc.

Light stones may be the choice

Hardness: This property is important for floor pavements aprons of bridges etc. the hardness is determined by the Mohs scale (section 3.2)

Toughness: The measure of impact that a stone can withstand is defined as toughness. the stone used should be tough when vibratory or moving loads are anticipated.

Porosity and Absorption: Porosity depends on the mineral constituents, cooling time and structural formation. A porous stone disintegrates as the absorbed rain water freezes, expands and causes cracking. permissible water absorption for some of the stones is given in table 3.5.

Table 3.5 24 Hours Water Absorption of stones by volume

1. sand stone	40
2. limestone	40
3. granite	1
4. trap	6
5. shale	40
6. marble	1
7. slate	1
8. quartzite	3

Seasoning The stone should be well seasoned

Weathering The resistance of stone against the wear and tear due to natural agencies should be high.

Work ability Stone should be workable so that cutting dressing and bringing it out in the required shape and size may not be uneconomical.

Fire Resistance Stones should be free from calcium carbonate oxides of iron and minerals having different coefficients of thermal expansion. Igneous rock show marked disintegration

Principally because of quartz which disintegrates into small particles at a temperature of about 575°C . Limestone however can withstand a little higher temperature, i.e. up to 800°C after which they disintegrate.

Specific Gravity:- The specific gravity of most of the stones lies between 2.3 to 2.5.

Thermal Movement:- Thermal movements alone are usually not trouble-some. However, joints in coping and parapets open-out intetting the rain water causing trouble. Marble slabs show a distinct distortion when subjected to heat. An exposure of one side of marble slab to heat may cause that side to expand and the slab warps. On cooling the slab does not go back to its original shape.

3.10 TESTING OF STONES

Building stones are available in large quantity in various parts of the country and to choose and utilize them for their

6815K

satisfactory performance, it is necessary to test the stone for its strength properties, durability and quality.

BRICK classification of brick

on the basis of field property.

- a) 1st class brick
- b) 2nd class brick
- c) 3rd class brick
- d) 4th class brick

a) 1st class brick

- These bricks are thoroughly burnt & red in colour.
- They have smooth and rectangular burnt are with sharp edges.
- They are free from flaws crack stone.
- They must not absorb more than 12-15% of its dry weight water when immersed in cold water for 24 hours.

w_1 = dry brick

w_2 = wet brick

$$w_2 - w_1 = \left(\frac{w_2 - w_1}{w_1} \times 100 \right)$$

- They must possess crushing strength of 10 N/mm²

ii) 2nd class brick
Their specifications are same as 1st class brick
Except:

i) small crack is permitted
ii) water absorption is about (16-20%) of dry weight is allowed.

iii) crushing strength 7 N/mm^2

iii) 3rd class brick

- under burnt brick
- Light in colour
- Producing dull sound when stick each other.
- water absorption is about 25% dry light.

iv) 4th class brick

- These are over burnt brick
- Badly distorted shape & size
- 4th class brick are brittle in nature.
- These are used for ballast work or floor work.

Ingredients of Brick earth

Brick earth $\rightarrow$ soil used for preparation of brick

- i) silica $\rightarrow$ (50-60%)
- ii) alumina $\rightarrow$ (20-30%)
- iii) lime $\rightarrow$ 10%
- iv) magnesia $\rightarrow$ (<1%)
- v) Iron oxide $\rightarrow$ (<7%)
- i) silica (50-60%)

$\rightarrow$ It enables the brick to retain its shape & size.

$\rightarrow$ It imparts durability to the brick by preventing shrinkage and warping in it.

ii) Alumina (20-30%)

$\rightarrow$ It absorbs water and imparts plasticity to the brick earth, hence helps in its moulding.

$\rightarrow$ If it is in excess it produces cracks on drying.

(iii) Lime (10%)

- Reduces shrinkage on drying
- causes silica in clay to melt on burning thus helps to bind it

(iv) Magnesia (< 4%)

- It causes the clay to soften at slower rate than most causes.

- It reduces working of brick

(v) Iron oxide (< 7%)

- It gives red colour to the brick
- It improves permeability of durability of bricks.

→ Manufacturing of brick

Manufacturing of brick is carried out in following sequence of operation

- Preparation of clay/brick earth
- Moulding
- Drying
- Burning

(i) Preparation of clay

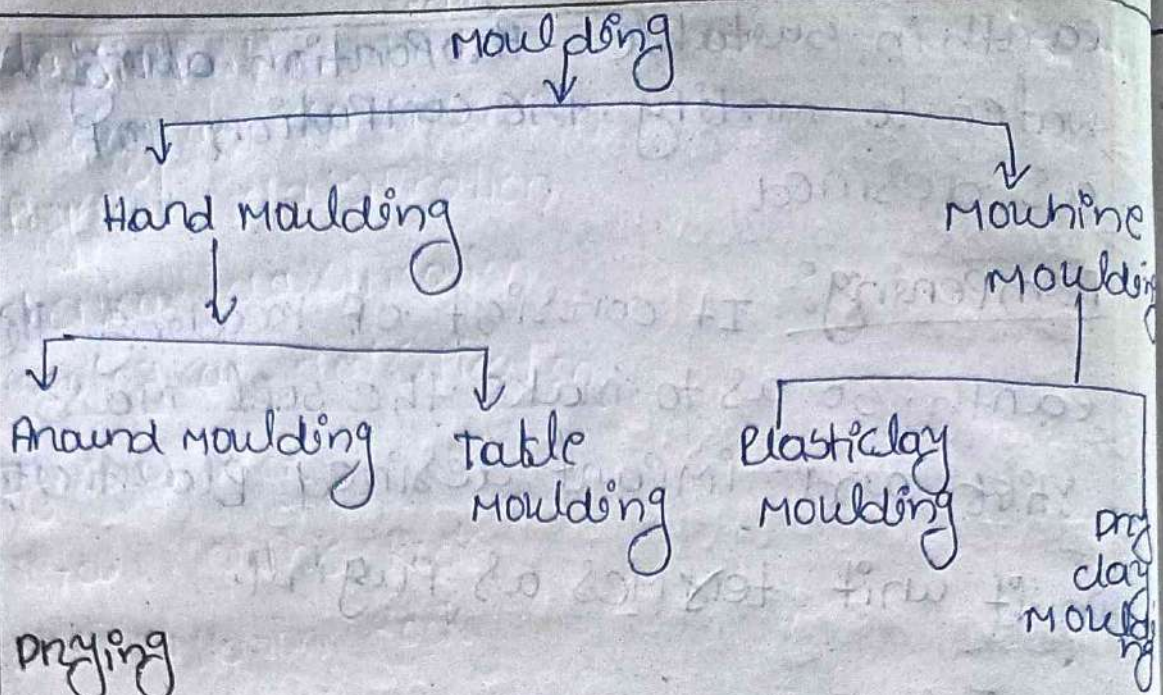
- (a) winnowing :- It is process in which 200 mm (top layer) of soil layer is removed and not being used for manufacturing of bricks as it contains lot of impurities.
- (b) digging :- It is the process of excavation of the soil and spreading it over the level surface.
- (c) cleaning It is the process of removal of stones pebbles organic matters from excavated soil.
- (d) weathering :- It is the process in which cleaned soil is left to be exposed to weather for at least one month or so in order to develop homogeneity and also to eliminate the impurities from clay (by oxidation).
- (e) blending :- Here the soil is mixed with sandy earth and calcareous

earth in suitable proportion along with water to modify the composition of soil as desired.

Tempering:- It consists of kneading the earth so as to make the soil mass stiff and impart desired plasticity in it unit termed as pug mill.

Moulding:-

- It is the process of giving the required shape and size to the brick earth.
- Moulding is done with the help of unit termed as mould which may be wood or steel.
- The size of mould is kept 8-12% greater than the actual size of the brick in order to account for shrinkage during drying or having burning process.
- During moulding frog is placed over the brick.



Drying

→ During drying moisture content of brick is reduced up to 3% before subjecting it to more operation of burning.

Burning

→ Burning of brick should be carried out properly as if brick are over burnt they become hard and break easily and if bricks are under burnt they remain soft and are not able to carry the defined load.

Fuse

Lime + silica → impart strength to the brick

→ Burning of brick is done at temperature of 900°C - 1200°C at which SiO_2 & silica fuse with each other thereby imparting strength to it.

→ Kiln

→ These are large ovens used for burning of bricks.

→ Depending upon supply of bricks obtained from it they are classified into two categories.

1. Intermittent kiln

2. Continuous kiln

Intermittent kiln

From the kiln supply of brick obtained is intermittent as all

operation of loading, burning, unloading & unloading are done one after another.

→ These are further classified as

i) up-draught kiln

ii) down-draught kiln

up-draught kiln

Here movement of gases during burning is in upward direction.

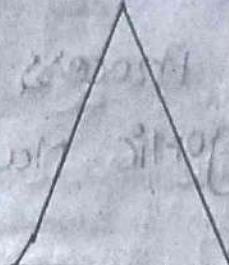
Date-03/08/24

Brick

→ Brick is made up of clay or mixture
sand & OPC



(Rectangle)



(Triangle)



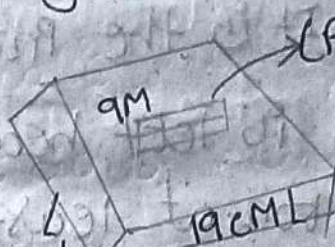
(Hexagon)



(Circle)



(Parallelogram)



(Rhombus)

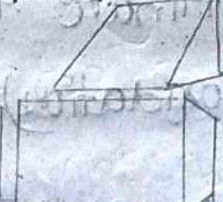


(Rhombus)

Standard size of brick
= $19\text{cm} \times 9\text{cm} \times 9\text{cm}$



(Square)



nominal size = $20\text{cm} \times 10\text{cm} \times 10\text{cm}$

* Preparation day

→ unbolting

→ digging

cleaning → It is the process of removal of stones pebbles, organic matters from excavated soil.

Weathering:- It is the process in which cleaned soil is left heap and exposed to weather for at least one month or so in order to develop homogeneity and also to eliminate the impurities from clay (by oxidation)

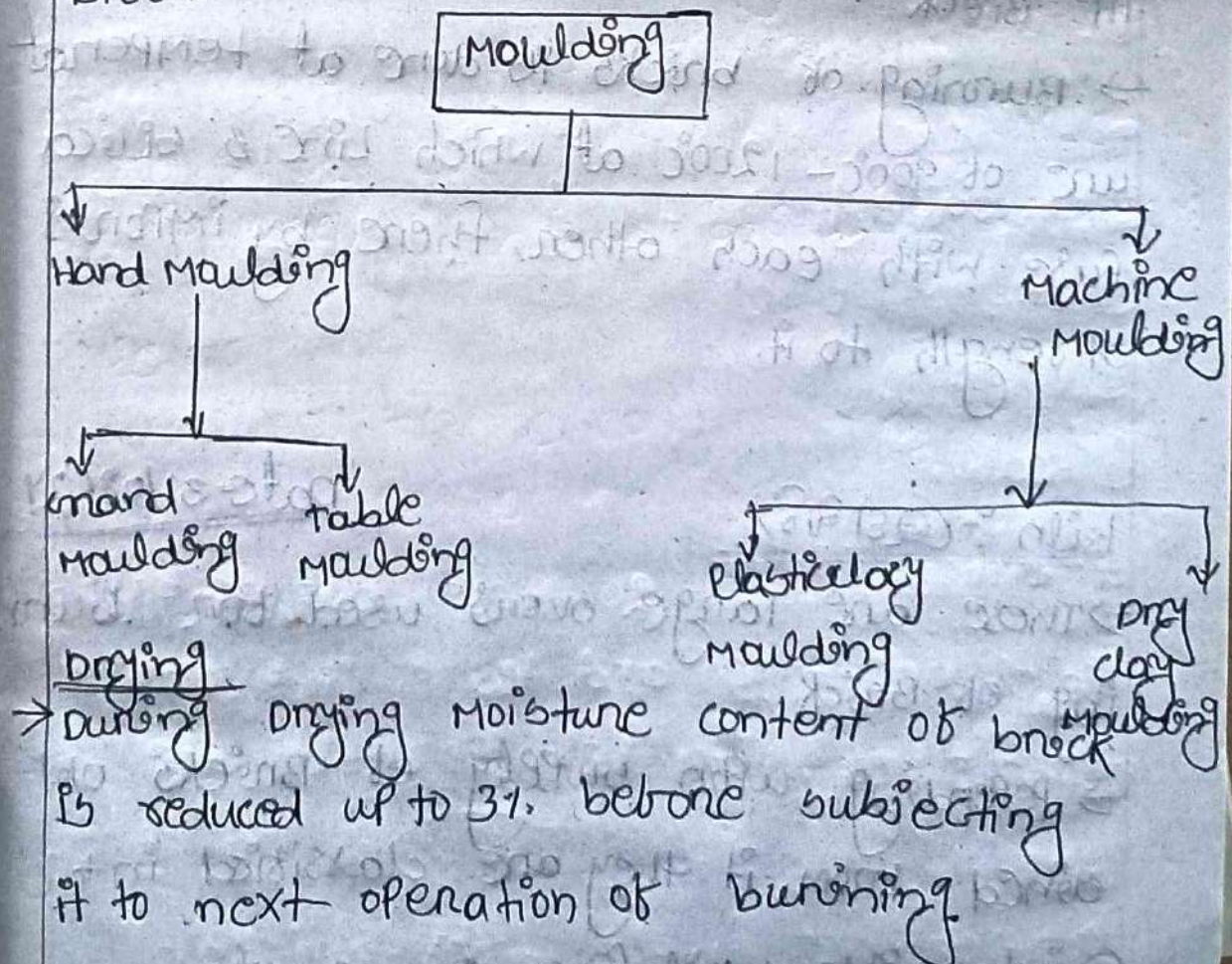
Blending:- Here the soil is mixed with sandy earth and calcareous earth in suitable proportion along with water to modify the compaction of soil as desired.

Tempering:- It consists of kneading the earth so as to make the soil mass soft and impart desired plasticity with unit termed as pugmill.

date 24/08/24

Moulding

- It is the process of giving the required shape & size to the brick earth.
- Moulding is done with the help of unit termed as mould which may be wood or steel.
- The size of mould is kept 8-12% greater than the actual size of the brick, in order to account for shrinkage during drying or having burning process.
- During moulding frog is placed over the brick.



date- 28/08/24

- Kiln - (କଣାବାଣ)
- Burning - (ପଡ଼ିବା)
- rick mark - (ଲେଖ)

Burning

- Burning of Bricks should be carried out properly. If bricks are over burnt they become hard and break easily and if bricks are under burnt they remain soft and are not able to carry the desired load.

→ $900^{\circ}\text{C} - 1200^{\circ}\text{C}$

→ Lime + silical fuse → Impart strength to the brick

- Burning of bricks is done at temperature of $900^{\circ}\text{C} - 1200^{\circ}\text{C}$ at which lime & silica fuse with each other, thereby imparting strength to it.

Kiln :- (କଣାବାଣ)

date- 31/08/24

- These are large ovens used for burning of bricks.

- Depending upon supply of bricks obtained from it they are classified into

① intermittent kiln ② continuous kiln

→ Intermittent Kiln:

→ From the kilns supply of bricks obtained is intermittent as all operation of loading burning cooling, & unloading are done one after another.

→ These are further classified as:

① Updraught Kiln

② Down draught Kiln

Updraught Kiln:

→ Here movement of gases during burning is in upward direction.

Down - draught Kiln:

→ Here movement of gases during burning is in down ward direction.

Continuous Kiln:

→ These are the types of kilns in which supply of all bricks continuous as all the operation of loading, burning cooling and unloading is done simultaneously.

These classified as:

① Bulk trench Kiln

② Habbman Kiln

③ Tunnel Kiln

date- 28/08/24

- Kiln- (କଣାବାଡ଼ି)
- Burning- (ପାଣି)
- rice husk- (ଭୂସ)

Burning

- Burning of Bricks should be carried out properly. If bricks are over burnt they become hard and break easily and if bricks are under burnt they remain soft and are not able to carry the desired load.

→ $900^{\circ}\text{C} - 1200^{\circ}\text{C}$

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Kiln :- (କଣାବାଡ଼ି)

date- 31/08/24

- These are large ovens used for burning of Bricks

- Depending upon supply of Bricks obtained from it they are classified into

① intermittent kiln ② continuous kiln

→ Intermittent Kilns

→ From the kilns supply of bricks obtained is intermittent as all operation of loading burning cooling, & unloading are done one after another.

→ These are further classified as

① updraught kiln

② down draught kiln

updraught kilns

→ Here movement of gases during burning is in upward direction.

down - draught kilns

→ Here movement of gases during burning is in down ward direction.

-continuous kilns-

→ These are the types of kilns in which supply of all bricks continuous as all the operation of loading, burning cooling and unloading is done simultaneously.

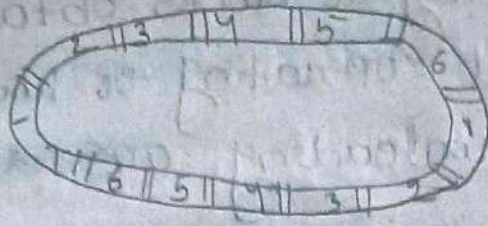
These classified as

① Bulk trench kiln

② Harkman kiln

③ Tunnel kiln

Bulltrench Kiln



→ These kiln are either rectangular or circular or oval in shape.

→ In this kiln continuous supply of brick is ensured.

→ Because all the operation in loading, burning, cooling and unloading is done simultaneously in different chamber.

① Loading

② empty

③ unloading

④ cooling

⑤ burning

⑥ Heating

Dimension Tests:-

20 pieces out of selected pieces are taken and led

→ These commutative dimension are recorded.

→ Tolerance on the sizes bricks are

are fixed by maximum and minimum dimension

length of brick (individual)	width of brick	Height of brick
90 mm	90 mm	90 mm

No. of brick = 20	1800 mm	1800 mm
3800 mm		

tolerance value $\pm 80 \text{ mm}$ $\pm 40 \text{ mm}$ $\pm 40 \text{ mm}$
(3720-3880) (1760-1840) (1760-1840)

Water Absorption test:-

- ① 24 hrs immersion cold water test
- ② 5 hrs boiling water test
- ③ 24 hrs immersion cold water test

→ Dry bricks are put in an oven and temperature of 105°C to 115°C in (weight) W_1 of the brick is recorded after cooling at room temperature.

→ The bricks are then immersion water and temperature $27 \pm 2^{\circ}\text{C}$ for 24 hours and are again weight (W_2) after remove it from water.

$$\text{Absorption} = \frac{W_2 - W_1}{W_1} \times 100$$

The average water absorption shall not be maximum then 20% by weight or to class 2 brick.

→ and 15% by weight for 5 class.

① characteristics of good brick

⇒ the essential requirement for building brick are sufficient strength and crushing strength size a proper section and pleasing appearance when exposed to view.

① Shape & size

The brick should have uniform size and plain rectangular circles with parallel sides and sharp straight edge.

② colour

The brick should have a uniform deep red or cherry colour or indicative in chemical composition and thoroughness in the burning of the bricks.

③ Textures & compactness:-

The surface should not be too smooth to cause slipping of mortar. The brick should have fine compact and uniform texture.

④ Hardness & soundness:-

The brick should be so hard that when scratched by finger nail no impression is made when brick are struck together a metallic sound should be produced.

⑤ Water Absorption

→ water absorption should not exceed 20% of its dry weight when kept immersed in water for 24 hrs.

⑥ crushing strength

crushing strength should not be less than 10 N/mm^2

CEMENT

Cement in its broadest term means any substance which acts as a binding agent. Natural cement (Roman cement) is obtained by burning and crushing the stones containing clay, carbonates of lime magnesia. The clay content in such stones is about 20 to 40 percent. Natural cement resembles very closely eminent hydraulic lime.

It is not strong as artificial cement, so it has limited use in practice.

Artificial cement is obtained by burning at very high temperature. A mixture of calcareous and argillaceous materials in correct proportion calcined product is known as clinker. A small quantity of gypsum is added to clinker and it is then pulverized into very fine powder is known as cement.

Cement was invented by a mason Joseph Aspdin of Leeds in

England in 1824. The common variety of artificial cement is known as Normal setting cement or ordinary cement or Portland cement.

Ingredients-Functions:-

Ordinary Portland cement contains two basic ingredients, namely argillaceous and calcareous. In argillaceous materials clay predominates and in calcareous materials calcium carbonate predominates. Good ordinary cement contains following.

Ingredients:-

1. Lime (CaO) - - - - 62%
2. Silica (SiO_2) - - - - 22%
3. Alumina (Al_2O_3) - - - - 5%
4. Calcium sulphate (CaSO_4) - - - 4%
5. Iron oxide (Fe_2O_3) - - - 3%
6. Magnesia (MgO) - - - 2%
7. Sulphur - - - 1%
8. Alkalies - - - 1%

Functions of Ingredients:-

Lime: Lime is the important ingredient of cement and its proportion is to be maintained carefully. Lime in excess makes the cement unsound and causes the cement to expand and disintegrate.

on the other hand if lime is in deficiency the strength of the cement is decreased and it causes cement to set quickly.

Silica: This also an important ingredient of cement and it gives or imparts quick setting property to impart strength to cement.

Alumina: This ingredient imparts quick setting property to cement. Excess alumina weakens the cement.

Calcium sulphate: This ingredient is in the form of gypsum and its function is to increase the initial setting time of cement.

Magnesia:- The small amount of this ingredient imparts hardness and colour to cement.

Sulphur:- A very small amount of sulfur is useful in making sound cement. If it is in excess, it causes the cement to become unsound.

Alkalies:- Most of the alkalies present in raw material are carried away by the flue gases during heating and only small quantity will be left. If they are in excess in cement, efflorescence is caused.

Iron oxide:- Iron oxide gives cement its characteristic gray colour. Iron oxide helps strengthen cement by reacting with aluminum and calcium at high temperatures to form tricalcium aluminato ferrite.

Types of cement:-

In addition to ordinary cement, the following are the other varieties of cement.

Acid Resistance cement: This is consists of acid resistance aggregates such as quartz, quartzite, etc. additive such as sodium Huro silicate. (Na_2SiO_6) and aqueous solution of sodium silicate. This is used for acid-resistant and heat resistant coating of installations of chemical industry. By adding 0.5 percent of used oil or 2 percent of cenezil, its resistance to water is increased and known as acid water resistant cement.

Blast furnace cement: for this cement slag is obtained from blast furnace in the manufacture of pig iron and it contains basic elements of cement, namely alumina, lime and silica. The properties of this cement are more or less the same as those of ordinary cement and prove to be

economical as the slag, which is waste product. It is used in its manufacture.

Coloured cement: cement of desired colour may be obtained by intimately mixing mineral pigments with ordinary cement. The amount of colouring may vary from 5 to 10 percent and strength of cement is not exceeded. 10 percent chromium oxide gives brown, red or yellow for different proportions. Coloured cements are used for finishing of floors, external surfaces, artificial marble windows.

Expanding cement: This type of cement is produced by adding an expanding medium like sulpho aluminate and a stabilizing agent to ordinary cement. Hence this cement expands whereas other cements shrink. Expanding cements are used for the construction of water-retaining structures and also

for repairing the damaged concrete surface.

High alumina cement:

This cement is produced by grinding clinkers formed by calcining bauxite and lime. The total content should not be less than 32 percent and the ratio by weight of alumina to lime should be between 0.85 and 1.30.

Advantages:-

Initial setting time is about $3\frac{1}{2}$ hours there fore, allows more time for mixing and placing operations. It can stand high temperatures. It evolves great heat during setting there fore not affected by frost. It resists the action of acids in a better way.

It sets quickly and attains higher ultimate strength.

Disadvantages:-

It is costly it cannot be used in mass construction as it evolves great heat.

and alst sets soon.

Extreme care is to be taken to see that it does not come in contact with even traces of lime or ordinary cement.

Hydrophobic cement: This type of cement

contains admixtures which decrease the wetting ability of cement grains.

The usual hydrophobic admixtures are acidol naphthene soap, oxidized petrolatum etc. When hydrophobic cement is used the fine pores in concrete are uniformly distributed and thus the frost resistance and the water resistance of such concrete are considerably increased.

Low Heat cement: Considerable heat is produced during the setting action of cement. In order to reduce the amount of heat, this type of cement is used. It contains lower percentage of tricalcium silicate (C3A) and

higher percentage of dicalcium silicate (C2S). This type of cement is used for

mass concrete works because it provides less compressive strength.

Pozzolona cement:- Pozzolona is a volcanic powder and the percentage should be between 10 to 30.

Advantages:-

it attains compressive strength with age. it can resist action of sulphates. it evolves less heat during setting. it imparts higher degree of water tightness. it imparts elasticity and work ability to mortar and concrete prepared from it. it offers greater resistance to expansion.

it possesses higher tensile strength.

Disadvantages:-

compressive strength in early days is less. it possesses less resistance to erosion and weathering action.

Quick setting cement:-

This cement is prepared by adding a small percentage aluminum sulphate.

which reduce the percentage of gypsum or retarded the setting action and accelerating the setting action of cement. As this cement hardens less than 30 minutes mixing and placing operations should be completed. This cement is used to lay concrete under static water or running water.

Rapid Hardening cement:-

This cement has same initial and final setting times as that of ordinary cement but it attains high strength in early days due to burning at high temperature.

Increased lime content in cement composition very fine grinding.

Advantages:-

Construction work may be carried to formwork of concrete can be removed earlier. It is light in weight. It is not damaged easily.

This cement requires short period of curing use of this cement also high

permissible stresses in the design. structural member constructed with this cement may be loaded earlier.

Sulphate Resisting cement:

In this cement percentage of tricalcium aluminates is kept below 5 to 6 percent and it results in the increase in resisting power against sulphate.

This cement is used for structure which are likely to be damaged by severe alkali condition such as canal linings, culverts, siphons etc.

White cement:

This is a variety of ordinary cement and it is prepared from such raw materials which are

practically free from colouring oxides of iron, manganese or chromium. For burning of this cement, oil fuel is used instead of coal. It is used for floor finish, plaster work, ornamental works etc.

uses of cement:-

cement mortar for masonry work, plaster, pointing etc. concrete for laying, floors, roofs and constructing lintels, beams, weather, sheds, stairs, pillars etc. construction of important engineering structure such as bridge, culverts, dams, tunnels, storage reservoirs, Light Houses, decks etc. construction of water tanks, water mains, sewers, septic tanks, lamp posts, roads, telephone cabins etc. making joints for drains, pipes etc. manufacture of pre cast pipes, piles, drains, flower pots etc. dustbins, fencing posts etc. preparation of foundation, watertight floors, foot paths etc.

Admixtures:-

uses These are the ingredients or substance, which are added to concrete to improve its properties like strength, hardness, water resisting power, workability etc. Many admixtures like alum etc. are commonly used for this purpose.

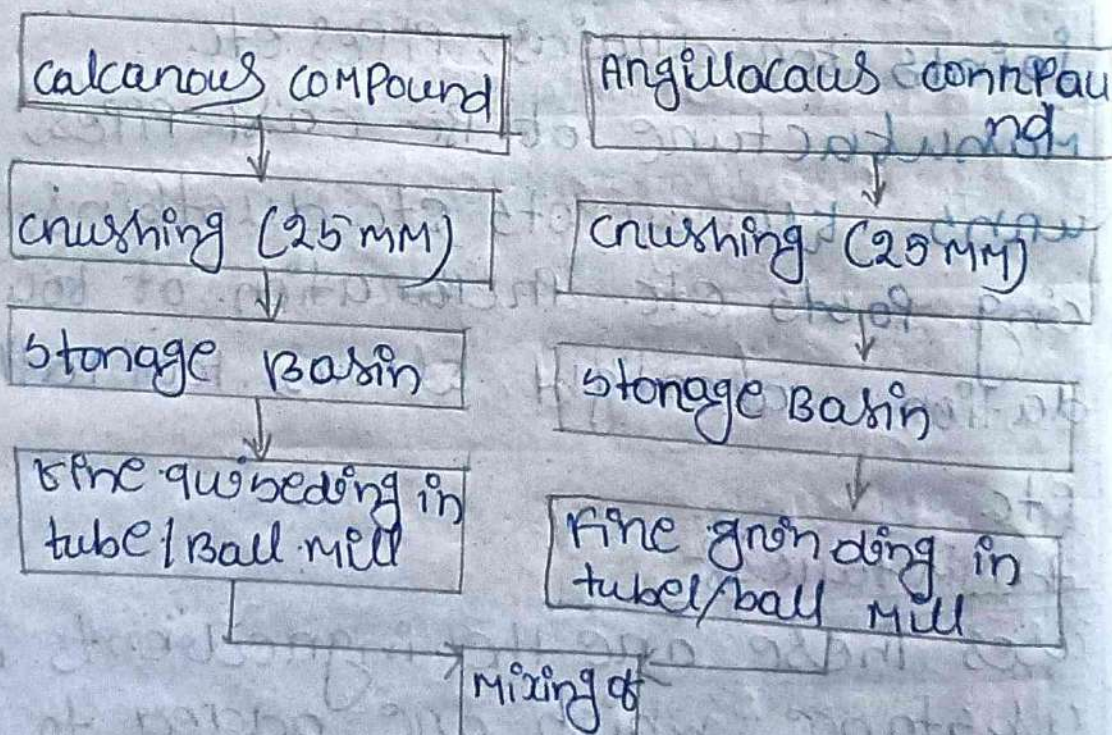
* MANUFACTURING OF CEMENT

* Manufacturing of cement is done in following sequence of operation.

- 1) mixing of raw ingredients
- 2) Burning
- 3) Grinding

* Manufacturing of cement can be done by any of the following methods.

a) Dry Process



Raw Ingredients
in connected Pro-
portion.

Pre heating at 300°C
by exhaust
gases

Storage of raw
mix

Feed to rotary kiln
(1400-1600°C)

Cement clinkers are
formed

fine grinding in tube/ball mill
Here gypsum is added

cement balls

2) Wet Process

calcareous compounds



crushing 2.5 mm



storage basin

argillaceous compounds



wash mill



storage basin

fine grinding in
tube / ball mill
to form the slurry



Blending of slurry to corrected pro
portion



storage of corrected slurry



fed to rotating kiln (1400-1800)



cement clinkers are formed



fine grinding in tube
mill / ball mill



cement silos



Packaging

- The chief advantage of wet process are the low cost of excavating and grinding raw material (as dry process is used for hard raw materials).
- Accurate content of composition and homogeneity of the slurry.
- Economical utilisation of fuel through the elimination of separated drying operations on the other hand it utilises longer kilns and more fuel for burning and are less responsive to demand.

Th1. STRUCTURAL DESIGN – I

Name of the Course: Diploma in Civil Engineering			
Course code:		Semester	4 th
Total Period:	75	Examination	3 hrs
Theory periods:	5P/week	Class Test:	20
Maximum marks:	100	End Semester Examination:	80

(Use of only IS 456 code is allowed in the written examination)

A. RATIONALE

The course will enable the students to undertake activities relating to the Design of simple Civil structural elements in view of load conditions and regulations imposed by standard or codes.

B. COURSE OBJECTIVES

On completion of the subject a student will be able to –

1. Comprehend design philosophies and compare those
2. Refer the design codes
3. Design simple R.C. structural elements
4. Draw structural details for construction
5. Analyze and design structural elements such as beams, columns, staircase etc
6. Design formwork and scaffolding.

C. TOPIC WISE DISTRIBUTION OF PERIODS

Chapter	Name of topics	Periods
1	Working stress method (WSM)	05
2	Philosophy of Limit state method (LSM)	03
3	Analysis and design of singly and double reinforced sections (LSM)	15
4	Shear, Bond and Development Length (LSM)	04
6	Analysis and Design of T-Beam (LSM)	15
7	Analysis and Design of Slab and Stair case (LSM)	15
8	Design of Axially loaded columns and Footings (LSM)	18

D. COURSE CONTENTS:

(The codal provision for I.S.456 – 2000 along with other codes are to be followed)

1 Working stress method (WSM)

- 1.1 Objectives of design and detailing. State the different methods of design of concrete structures.
- 1.2 Introduction to reinforced concrete, R.C. sections their behavior, grades of concrete and steel. Permissible stresses, assumption in W.S.M.
- 1.3 Flexural design and analysis of single reinforced sections from first principles.
- 1.4 Concept of under reinforced, over reinforced and balanced sections.

1.5 Advantages and disadvantages of WSM, reasons for its obsolescence.

2 Philosophy Of Limit State Method (LSM)

2.1 Definition, Advantages of LSM over WSM, IS code suggestions regarding design philosophy.

2.2 Types of limit states, partial safety factors for materials strength, characteristic strength, characteristic load, design load, loading on structure as per I.S. 875

2.3 Study of I.S specification regarding spacing of reinforcement in slab, cover to reinforcement in slab, beam column & footing, minimum reinforcement in slab, beam & column, lapping, anchorage, effective span for beam & slab.

3 Analysis and Design of Single and Double Reinforced Sections (LSM)

3.1 Limit state of collapse (flexure), Assumptions, Stress-Strain relationship for concrete and steel, neutral axis, stress block diagram and strain diagram for singly reinforced section.

3.2 Concept of under- reinforced, over-reinforced and limiting section, neutral axis co-efficient, limiting value of moment of resistance and limiting percentage of steel required for limiting singly R.C. section.

3.3 Analysis and design: determination of design constants, moment of resistance and area of steel for rectangular sections

3.4 Necessity of doubly reinforced section, design of doubly reinforced rectangular section

4 Shear, Bond and Development Length (LSM)

4.1 Nominal shear stress in R.C. section, design shear strength of concrete, maximum shear stress, design of shear reinforcement, minimum shear reinforcement, forms of shear reinforcement.

4.2 Bond and types of bond, bond stress, check for bond stress, development length in tension and compression, anchorage value for hooks 90° bend and 45° bend standards lapping of bars, check for development length.

4.3 Numerical problems on deciding whether shear reinforcement is required or not, check for adequacy of the section in shear. Design of shear reinforcement; Minimum shear reinforcement in beams (Explain through examples only).

5 Analysis and Design of T-Beam (LSM)

- 5.1 General features, advantages, effective width of flange as per IS: 456-2000 code provisions.
- 5.2 Analysis of singly reinforced T-Beam, strain diagram & stress diagram, depth of neutral axis, moment of resistance of T-beam section with neutral axis lying within the flange.
- 5.3 Simple numerical problems on deciding effective flange width. (Problems only on finding moment of resistance of T-beam section when N.A. lies within or up to the bottom of flange shall be asked in written examination)..

6 Analysis and Design of Slab and Stair case (LSM)

- 6.1 Design of simply supported one-way slabs for flexure check for deflection control and shear.
- 6.2 Design of one-way cantilever slabs and cantilevers chajjas for flexure check for deflection control and check for development length and shear.
- 6.3 Design of two-way simply supported slabs for flexure with corner free to lift.
- 6.4 Design of dog-legged staircase
- 6.5 Detailing of reinforcement in stairs spanning longitudinally.

7 Design of Axially loaded columns and Footings (LSM)

- 7.1 Assumptions in limit state of collapse- compression.
- 7.2 Definition and classification of columns, effective length of column. Specification for minimum reinforcement; cover, maximum reinforcement, number of bars in rectangular, square and circular sections, diameter and spacing of lateral ties.
- 7.3 Analysis and design of axially loaded short square, rectangular and circular columns (with lateral ties only).
- 7.4 Types of footing, Design of isolated square column footing of uniform thickness for flexure and shear.

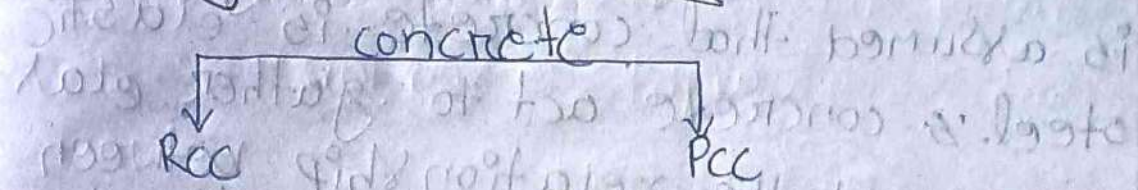
E. Syllabus Coverage up to Internal Assessment: Chapters 1, 2, 3, 4

F. RECOMMENDED BOOKS

Sl. No	Name of Authors	Titles of Book	Name of Publisher
1	N.Subramanian	Design of Reinforced Concrete Structures	Oxford Pbln
2	N.C.Sinha,S.K.Roy	Fundamentals of Reinforced Concrete	S.Chand
3	H.J Saha.	Reinforced Concrete	Charotar Publishing house
4	Pillai & Menon.	Reinforced Concrete Structures	Tata McGraw Hill Education Private Limited
5	A.K. Jain.	Limit State Method (RCC Design)	Nem Chand & Bros
6	IS:456-2000		BIS Publication
7	SP-16		BIS Publication

CHAPTER-1

Working stress method



RCC $\rightarrow$ Reinforced cement concrete

PCC $\rightarrow$ Plain cement concrete

objective of design of concrete

$\Rightarrow$ The main objective of Reinforced concrete design is to achieve structure that will result in a safe and economical solution.

Steps of design:-

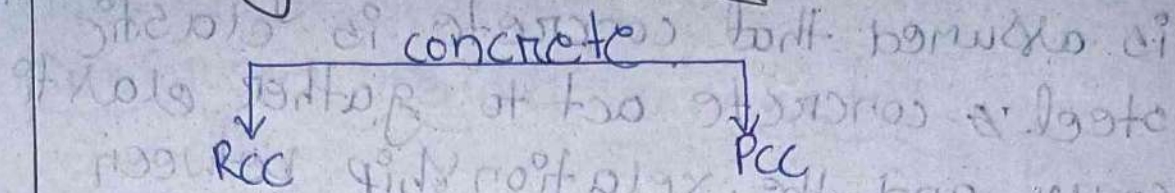
- ① Idealization of structure for analysis
- ② Estimations of loads
- ③ Analysis of idealized structural model to determine axial thrust, shears, bending moment and deflection
- ④ Design of structural elements
- ⑤ Detailed structural drawing and schedule of reinforcement bars.

Design Philosophies

- i. The working stress method
- ii. The ultimate load method
- iii. The limit state method.

CHAPTER-1

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Design philosophies

- i. The working stress method
- ii. The ultimate load method
- iii. The limit state method.

Working stress method:-

→ This has been traditional method used for reinforced concrete design where it is assumed that concrete is elastic & steel & concrete act together elastically and the relationship between loads and stresses is linear right up to the collapse of the structural.

Note:-

PCC - 2400 kg/m³

RCC - 25000 kg/m³

The ultimate load method

ultimate load = $1.5D + 2.2L$ (wind & earth quack load neglected)

ultimate load = $1.5D + 2.2L + 0.5W$ (wind & earth quack load should be considered)

← $= 1.5D + 0.5L + 2.2W$

W = wind or earth quack load

In the ultimate load method the working loads are increased by suitable factors to obtained ultimate load. these factors are called load factors.

Limit state method:-

The object of design based on the limit state concept is to achieve an acceptable probability that a structure

will not become unserviceable in its life time for the use for which it is intended that is it will not reach a limit state.

Reinforced cement concrete:

- i) Brittle material $\rightarrow$ sudden fail due to load application
- ii) weak in tension & strong in compression

material is sand
cement
aggregate
water
Admixture
steel

The to increase the tension force carrying capacity of an create & ductility of concrete reinforcement used.

Grades of concrete

Group	Designation	Characteristic compressive strength
ordinary concrete	M10	
	M15	
	M20	16
	M25	15
	M30	20
standard concrete	M35	25
	M40	30
	M45	35
	M50	40
	M55	45
High strength concrete	M60	50
	M65	55
	M70	60
	M75	65
	M80	70

RCC

Reinforced cement concrete

1) cement concrete

> mainly for compression

> Tensile strength is very low

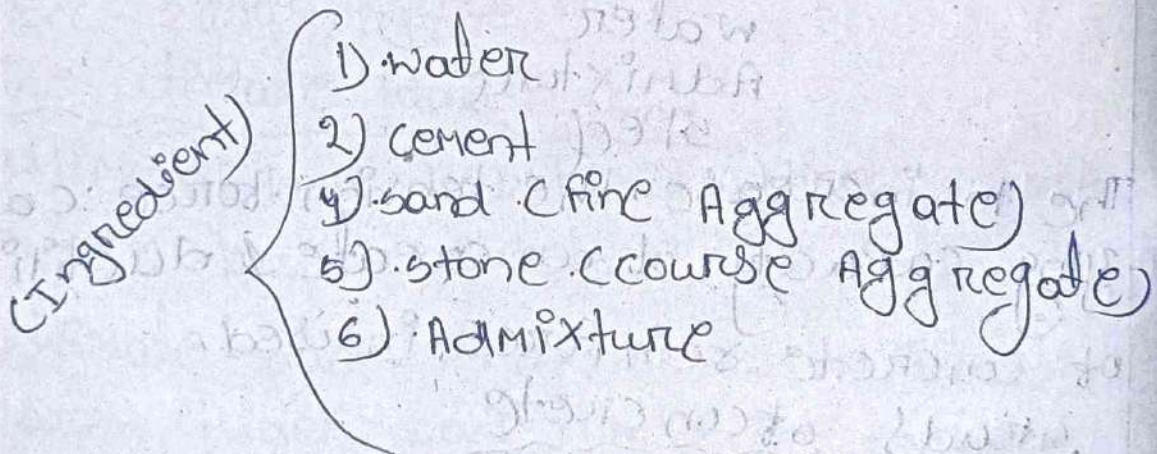
2) steel reinforcement

> main use for tension

> It will take compression also

cement concrete with out reinforcement

Plain cement concrete



cement mortar = cement + sand + water

cement concrete = cement + sand + aggregate + water + Admixture

cement concrete

Plain cement concrete

cement concrete
Reinforced by steel
is RCC

Reinforced cement
concrete - RCC

1) Water for concrete

- 1) water fit for human is good for concrete
- 2) water used for concrete should be clean and not contain any harmful substances
- 3) free from oil, salts, sugar, organic materials etc.
- 4) that may not harm concrete
- 5) sea water should not be used for RCC
- 6) salt of sea water is harmful to concrete
- 7) extreme case it may be used for PC
- The pH value of water

should not be less than 6

$\text{pH} < 6 \rightarrow$ highly acidic not acceptable

$\text{pH} = 6 \rightarrow$ slightly acidic $\rightarrow$ acceptable

• Water in cement concrete is for

1) combined water - chemically combined with the cement for hydration. it is non-evaporable

2) Free water - Held physically or adsorbed on the surface area of the cement grains. A fraction of free water is evaporable

3) Capillary water

occupies the capillary pores that constitute the space in the cement paste. This water is easily evaporated.

Q) Maximum limit of suspended matter in water
Ans $\Rightarrow$ 2000 mg/Lit

Q) Maximum limit of organic matter in water
Ans $\Rightarrow$ 200 mg/Lit

Permissible limits of solids in water

Tested for

Permissible limits

Organic $\longrightarrow$ 200 mg/Lit

Inorganic $\longrightarrow$ 3000 mg/Lit

Sulphate $\longrightarrow$ 400 mg/Lit

Chlorides $\longrightarrow$ 2000 mg/Lit $\rightarrow$ For RCC
500 mg/Lit $\rightarrow$ For RCC

Suspended matter $\longrightarrow$ 2000 mg/Lit

Cement

• OPC - ordinary Portland cement

1) 33 grade OPC

2) 43 grade OPC

3) 53 grade OPC

• Rapid Hardening cement - Becomes hard

• Portland Portland cement - use
Portland

• Hydrophobic cement - water repellent

• Low heat cement - produce less heat

• Sulphate resisting Portland cement

Aggregate

fine Aggregate - sand - size up to 4.75 mm
course Aggregate - stones chips of mixed size.

size up 4.75 - 20 mm or

4.75 - 40 mm

→ Angular are better than rounded aggregate

→ well graded stone aggregates are better uniformly (poorly) graded not suitable

→ for RCC - 20 mm is generally use

→ 10 mm size → for closely places steel sections

→ 40 mm size → for RCC

- (i) Based on actual stress developed due to actual working loads
- (ii) Actual stress in concrete < Permissible stress
- (iii) Permissible stress = $\frac{f_{ck} \text{ or } f_y}{\text{fos}}$
stress in concrete

- (i) Actual stress developed in concrete should not more than permissible (σ_{ck})
- (ii) characteristic stress in concrete = f_{ck}
- (iii) Factor of safety for concrete = 3
- (iv) Permissible stress (σ_{cbc}) = $\frac{f_{ck}}{3}$
stress in steel

- (i) Actual stress developed in steel should not be more than permissible stress (σ_{st})
- (ii) characteristic stress in steel = f_y
- (iii) Applying factor of safety for steel = 1.8
- (iv) Permissible stress (σ_{st}) = $\frac{f_y}{1.8}$

Assumption is WSM

- (i) Plan section remains plane before & after bending
- (ii) All tensile stresses are taken by steel only & not by concrete

(iii) stress-strain relation ship of concrete & steel under working load is straight line.

Ratio E_s/E_c is called modular ratio

$M = \frac{E_s}{E_c}$ modular ratio for design

$$M = \frac{280}{35} \text{ kg}$$

Equivalent Area of concrete

The concept of equivalent Area of concrete is used in the design of reinforced concrete beams using the working stress method. It involves replacing the actual concrete section of the beam with an equivalent area of concrete that represents the same strength as the actual section but is easier to work with mathematically.

The equivalent area of concrete is determined by dividing the actual area of concrete into two parts: the area of concrete above the neutral axis (compression zone) and the area of concrete below the neutral axis (tension zone).

The area of concrete in the compression zone is multiplied by a factor called

the modular ratio which is the ratio of the modulus of elasticity of steel to that of concrete.

$$AC = m A_s$$

- AC = Area of concrete
- A_s = Area of steel

stress in concrete $P_c = P_s / m$

where,

- P_c = stress in concrete (depends on various properties of concrete)
- P_s = stress in steel

critical depth of neutral axis (x_c)

The critical depth of neutral axis is an important parameter used in the working stress method for the design of reinforced concrete beams. It is the depth of the neutral axis or the location where the stress in the concrete changes from compression to tension at which the maximum allowable moment occurs. The critical depth of the neutral axis can be calculated by the limit state method using the following equation.

$$d = \frac{0.87 f_y A_s}{0.36 f_{ck} b}$$

where:

- d = critical depth of neutral axis
- f_y = yield strength of steel reinforcement
- A_s = Area of steel reinforcement
- f_{ck} $\Rightarrow$ characteristic compressive strength of concrete
- b = width of the beam

In this equation the numerator represents the resisting moment provided by the steel reinforcement and the denominator represents the moment of resistance provided by the concrete.

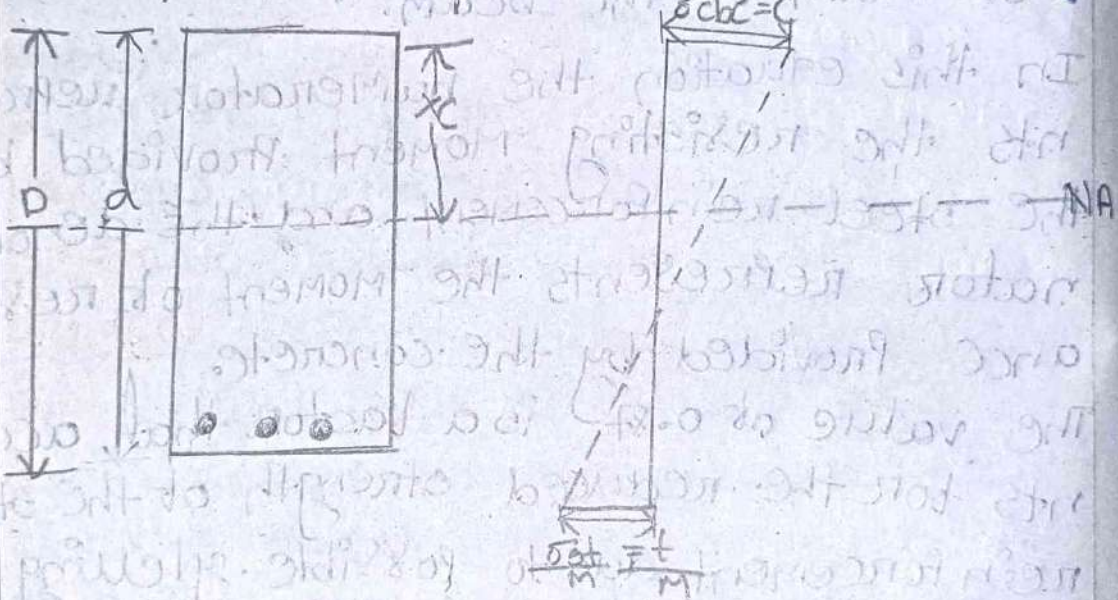
The value of 0.87 is a factor that accounts for the reduced strength of the steel reinforcement due to possible yielding under load and the value of 0.36 is a factor that accounts for the reduced strength of the concrete due to uncertainties in its compressive strength.

If the actual depth of the neutral axis is greater than the critical depth the beam is considered under-reinforced and the steel reinforcement is not fully utilized. If the actual depth of the neutral axis is less than the

critical depth, then the beam is considered over-reinforced and the concrete is not fully utilized.

The depth of the neutral axis as per the working state method can be calculated as follows:

$$x_c = \left\{ \frac{M_c}{C + M_c} \right\} d$$



Here,

D = overall depth

d = effective depth

$\sigma_{cbc} = C$ = permissible stress in concrete

$\sigma_{st} = t$ = permissible stress in steel

Actual depth of the neutral axis (x_a)

$$b x_a^2 / 2 = M A_s t (d - x_a)$$

Special case

1) when $x_a = x_c$ for balanced section

- ii) when $x_d > x_c$ for over-reinforced section
 iii) when $x_d < x_c$ for under-reinforced section
- Moment of Resistance (M_R)

The moment of resistance is a critical parameter used in the design of reinforced concrete beams using the working stress method. It represents the maximum moment that the beam can resist without experiencing failure or reaching its maximum allowable stress.

The moment of resistance is calculated based on the strength of the materials used in the construction of the beam, including the concrete and steel reinforcement. The formula for calculating the moment of resistance is:

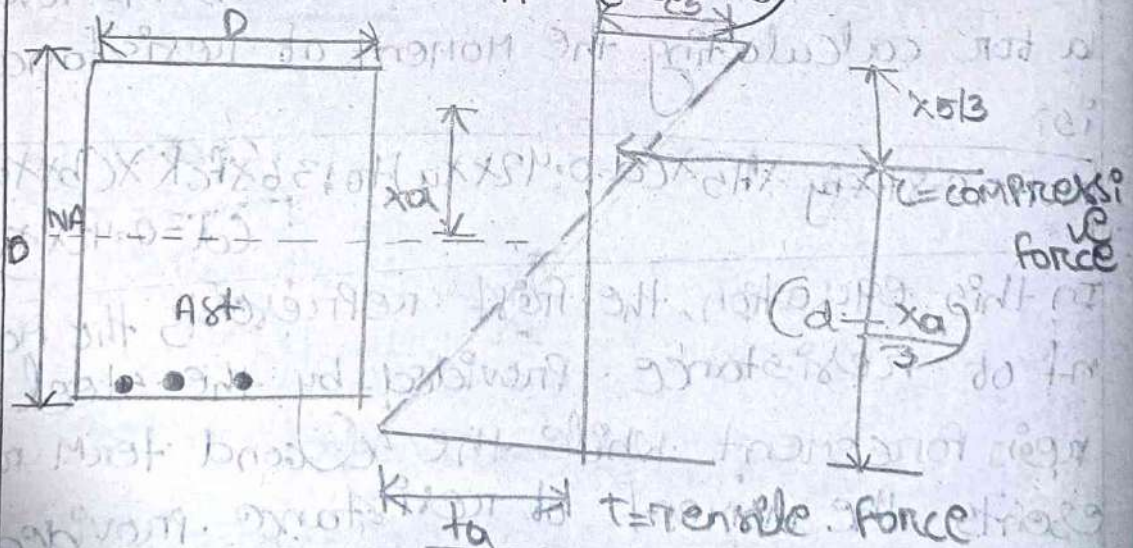
$$MOR = 0.87 \times f_y \times A_s \times (d - 0.42 \times x_u) + 0.36 \times f_c \times K \times (b \times x_u \times (d - 0.42 \times x_u))$$

In this equation, the first term represents the moment of resistance provided by the steel reinforcement while the second term represents the moment of resistance provided by the concrete. The factor of 0.87 is used to account for the reduction in strength of the steel due to possible yielding under load, while the factor of 0.36 is used to account for the reduction in

strength of the concrete due to uncertainties in its compressive strength. The moment of resistance is compared to the maximum bending moment expected in the beam to ensure that it is sufficient to resist the applied loads. If the moment of resistance is less than the expected bending moment, then the section of the beam needs to be redesigned with a larger effective depth or a higher amount of reinforcement to increase the moment of resistance.

MOR by the working stress method can be calculated as follows.

(i) For balanced section ($x_u = x_c$)

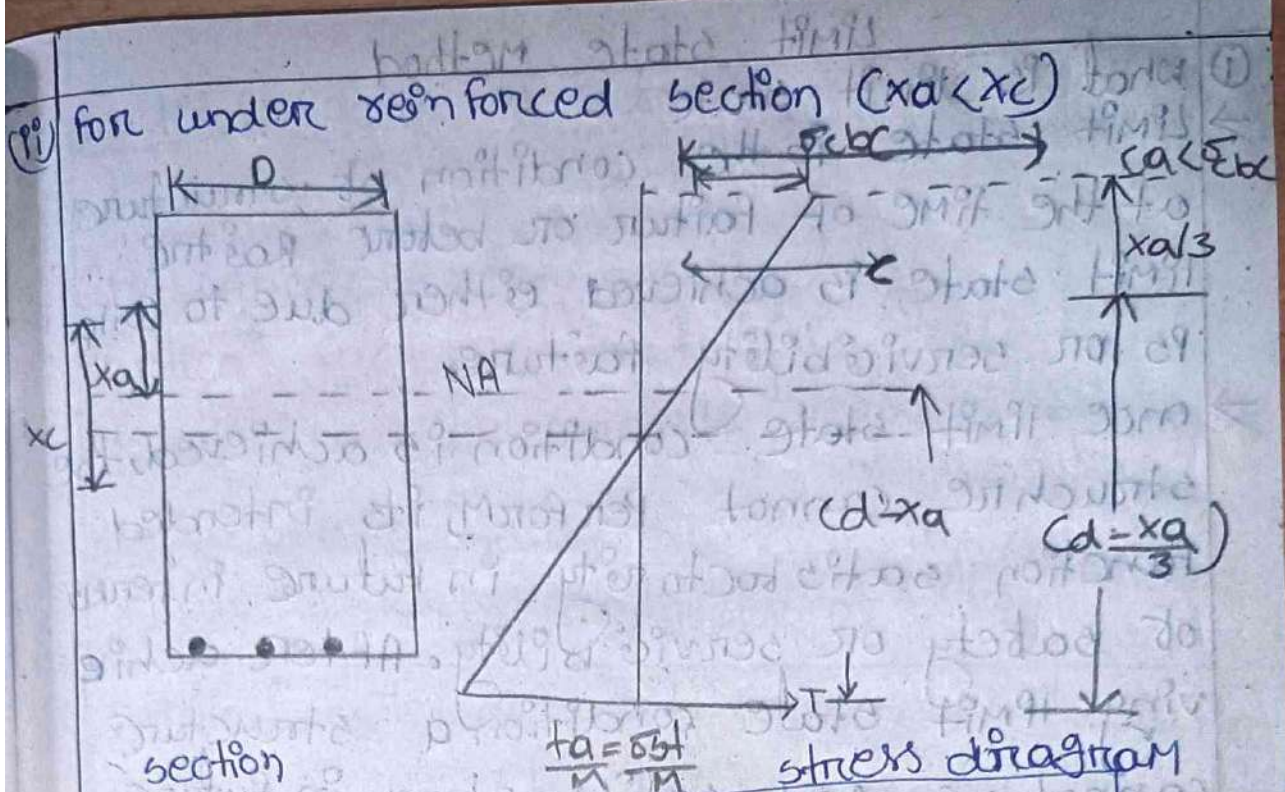


$$M_b = b \times 0.85 f_{ck} \times \frac{x_u}{3} \times (d - \frac{x_u}{3})$$

or

$$M_b = 0.85 f_{ck} A_s (d - \frac{x_u}{3})$$

$$(d - \frac{x_u}{3}) = \text{Lever Arm}$$



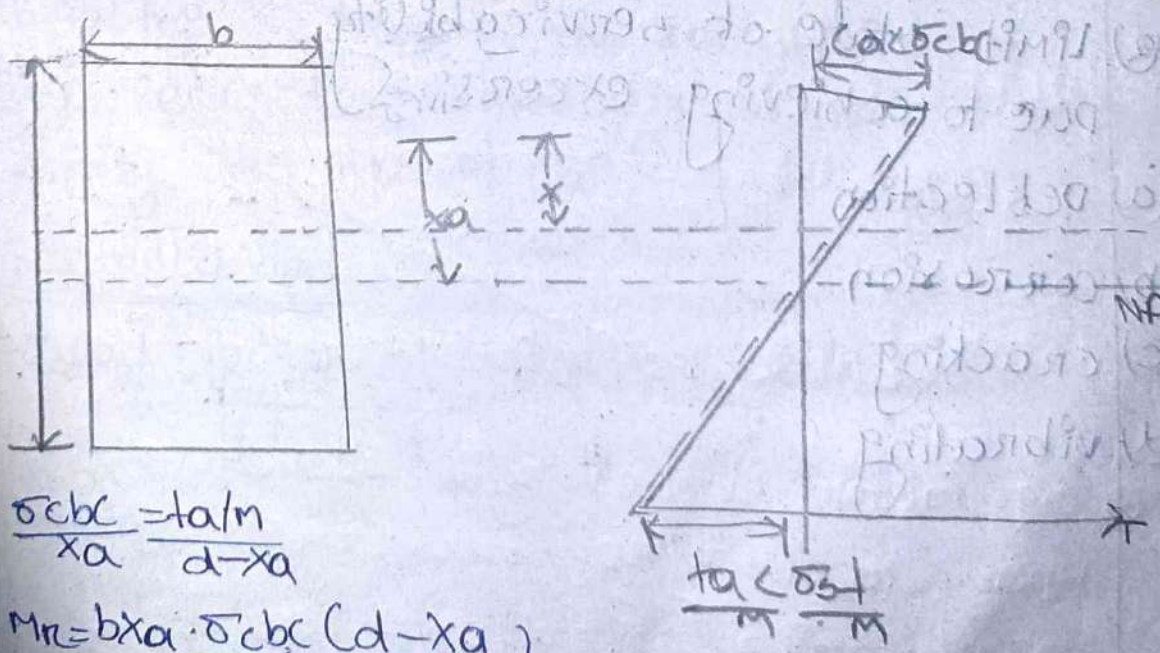
$$M_s = b x_a \cdot \frac{c_a (d - x_a)}{2}$$

or

$$M = \sigma_b A_{st} (d - \frac{x_a}{3})$$

$$c_a = \frac{\sigma_b x_a}{m(d - x_a)} \text{ here } c_a < \sigma_{bc}$$

(iii) for over-reinforced section ($x_a > x_c$)



$$\frac{\sigma_{bc}}{x_a} = \frac{f_a}{m(d - x_a)}$$

$$M_n = b x_a \cdot \frac{\sigma_{bc} (d - x_a)}{2}$$

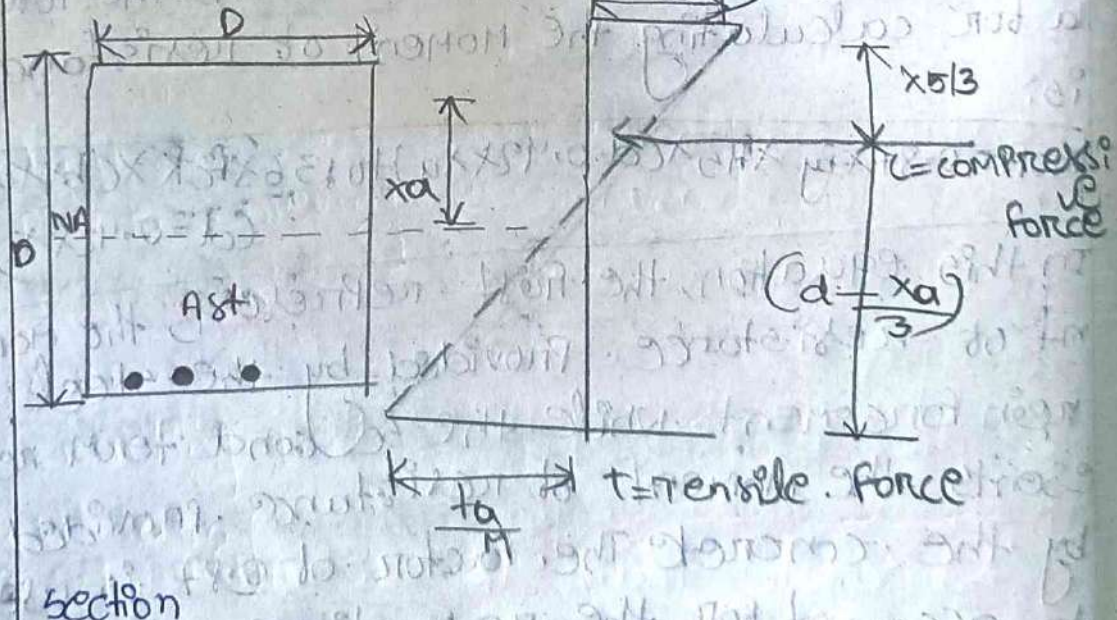
$$M_s = f_a \cdot A_{st} \cdot (d - \frac{x_a}{3})$$

strength of the concrete due to uncertainties in its compressive strength.

The moment of resistance is compared to the maximum bending moment expected in the beam to ensure that it is sufficient to resist the applied loads. If the moment of resistance is less than the expected bending moment, then the section of the beam needs to be redesigned with a larger effective depth or a higher amount of reinforcement to increase the moment of resistance.

MOR by the working stress method can be calculated as follows.

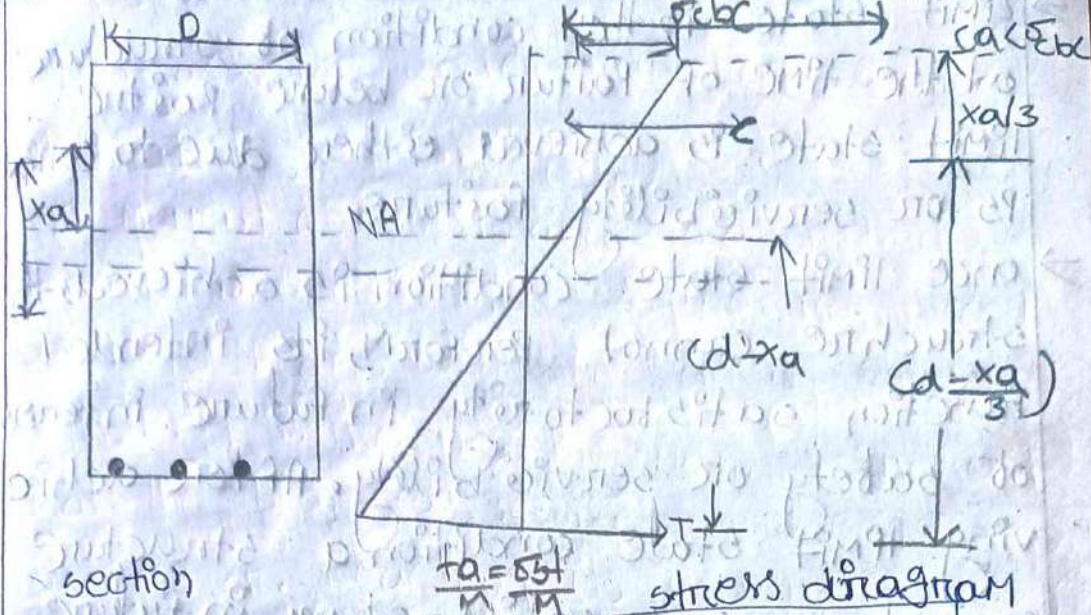
i) For balanced section ($x_u = x_c$)



$$M_b = b \times \frac{\sigma_c}{2} \times \left(d - \frac{x_u}{3} \right) \quad \text{or} \quad M_b = \sigma_s \times A_{st} \times \left(d - \frac{x_u}{3} \right)$$

$$\left(d - \frac{x_u}{3} \right) = \text{Lever Arm}$$

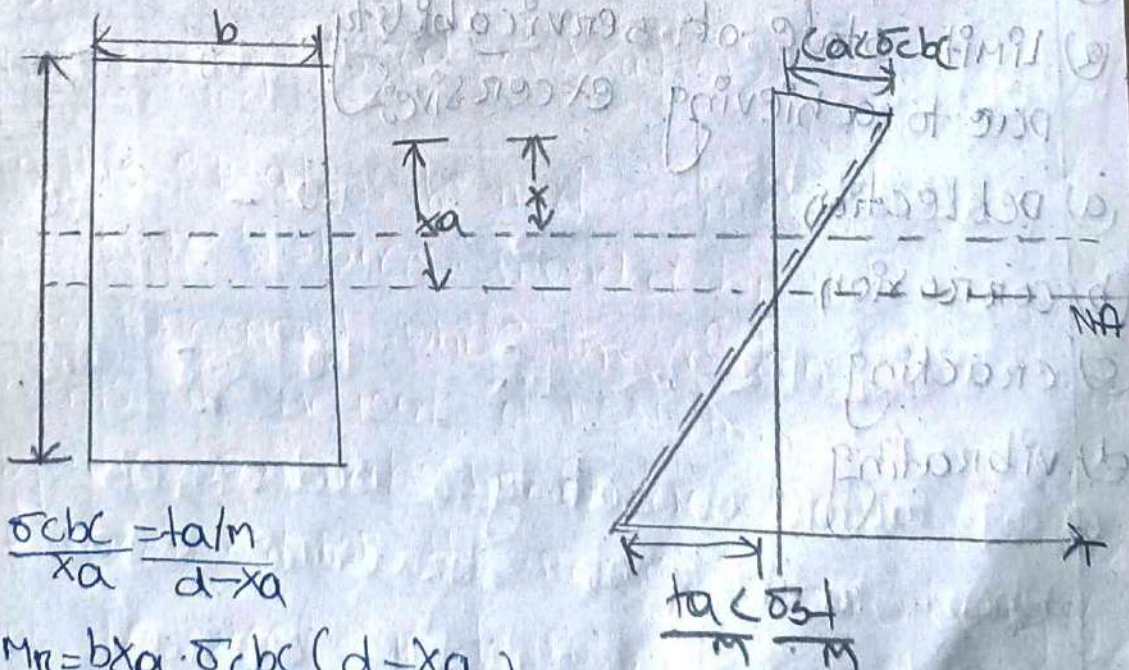
(ii) for under reinforced section ($x_a < x_c$)



$$M_s = b x_a \cdot \frac{\sigma_{cbc} (d - \frac{x_a}{3})}{2} \quad \text{or} \quad M = \sigma_{st} A_{st} (d - \frac{x_a}{3})$$

$$\frac{\sigma_{cbc}}{M} = \frac{\sigma_{st}}{M} \cdot \frac{x_a}{(d - \frac{x_a}{3})} \quad \text{here } \sigma_{cbc} < \sigma_{cbc}$$

(iii) for over-reinforced section ($x_a > x_c$)



$$\frac{\sigma_{cbc}}{x_a} = \frac{\sigma_{st}}{d - x_a}$$

$$M_r = b x_a \cdot \frac{\sigma_{cbc} (d - \frac{x_a}{3})}{2}$$

$$M_s = \sigma_{st} A_{st} (d - \frac{x_a}{3})$$

Limit state method

- ① What is Limit state
- Limit state is the condition of structure at the time of failure or before failure. Limit state is achieved either due to collapse or serviceability failure.
- Once limit state condition is achieved, the structure cannot perform its intended function satisfactorily in future in terms of safety or serviceability. After achieving limit state condition a structure cannot be used satisfactorily in future.
- Two type of limit state condition

① Limit state of collapse due to

a) Flexure

b) compression

c) shear

d) torsion

② Limit state of serviceability due to achieving excessive

a) deflection

b) corrosion

c) cracking

d) vibrating

Partial factor of safety to stress
characteristics strength

(for concrete f_{ck} , for steel $= f_y$)

Partial factor of safety is applied to characteristics strength to get design stress

$$\text{Design stress} = \frac{\text{characteristics strength}}{\text{Partial factor of safety}}$$

Partial factor of safety for concrete (γ_{mc}) = 1.5

Partial factor of safety for steel (γ_{ms}) = 1.15

characteristics strength:-

It is the that value of strength below which not more than 5% test results expected to fail.

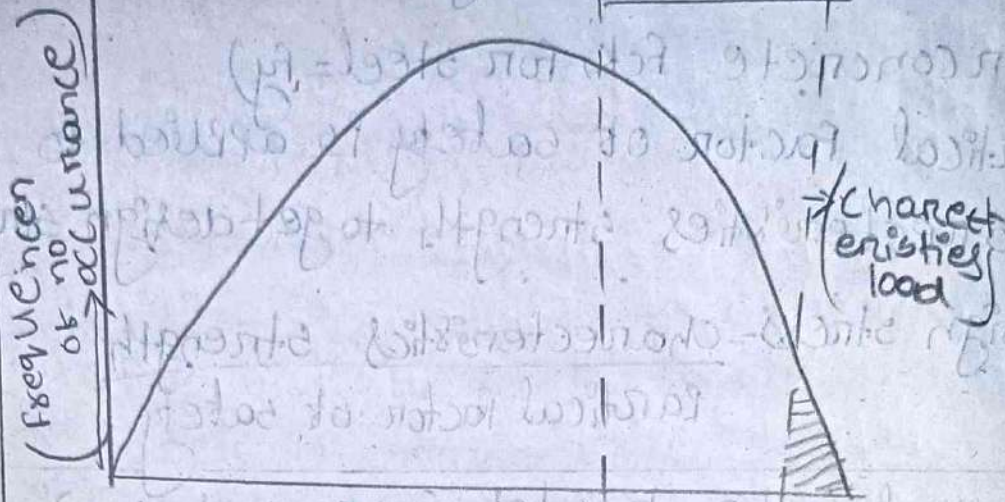
characteristics load

It is the that value of load which has 95% percent probability of not exceeded during the life of the structure.

Factored load

= Load factor of safety $\times$ Actual design load.

$$F_d = F_s \times V_s$$



Factor of safety to load values

Partial factor of safety for load

load combination	limit state of Collg PSC			limit state of serviceability		
	DL	L.L	EQ/WL	DL	L.L	EQ/WL
DL+L.L	1.5	1.5	—	1.0	1.0	—
DL+EQ/WL	1.5/0.9	—	1.5	1.0	—	1.0
DL+L.L+EQ/WL	1.2	1.2	1.2	1.0	0.8	0.8

- ① 0.9 factor of safety is used in DL when stability of structure against overturning or sliding critical

② F.O.S against over turning

$$= \frac{0.9 \times \text{Balancing moment}}{\text{overturning moment}} > 1.40$$

Partial factor of safety for concrete

As per IS 456 + IS 3811: C Pg-69

"Compressive strength of concrete shall be considered $0.67 f_{ck}$ & Partial factor of safety ($\gamma_{mc} = 1.5$) shall be applied in addition to the

$\therefore$ design stress in concrete in L.S.M

$$= 0.67 f_{ck} = 0.45 f_{ck}$$

Net factor of safety for concrete

- characteristic strength of concrete = f_{ck}
- compressive strength of concrete = $0.67 f_{ck}$

(due to effect of shape & size of structure)

$$\text{design stress} = \frac{\text{compressive strength}}{\text{Partial } f_{os}} = \frac{0.67 f_{ck}}{1.5} = 0.45 f_{ck}$$

(This design stress $0.45 f_{ck}$ is due to factored load $1.5f$)

$$\text{Actual stress due to Actual load} = \frac{0.45 f_{ck}}{1.5} = 0.30 f_{ck}$$

Net factored of safety of concrete in

$$L.S.M = \frac{f_{ck}}{0.30 f_{ck}} = 3.33$$

Partial factor of safety for steel

As per IS 456 - Per 38.1.1.1 Page-64

→ A partial factor of safety of $\gamma_m = 1.15$ shall be used for steel for design purpose.

→ characteristic strength = f_y , Partial factor of safety = 1.15

→ design stress = $\frac{\text{characteristic strength}}{\text{partial factor of safety}}$

$$= \frac{f_y}{1.15} = 0.87 f_y$$

(This design stress is due to factored load is $1.5F$)

→ stress due to actual load = $0.87 f_y \div 1.5 = 0.58 f_y$

→ Net factor of safety = $\frac{f_y}{0.58 f_y} = 1.725$

5.3 ASSUMPTIONS

The design of a reinforced concrete section for limit state of collapse in bending is based on the following assumptions.

- Plane section normal to the axis remain plane after bending.
- The maximum strain in concrete at the outer most compression fibre is taken 0.35% in bending regardless of the strength of the concrete.
- The relationship between stress-strain distribution in concrete is assumed to be parabolic as shown in fig 5.3. The maximum compressive stress is equal to $0.67 f_{ck}$ / $1.5 \times 0.87 f_{ck}$.

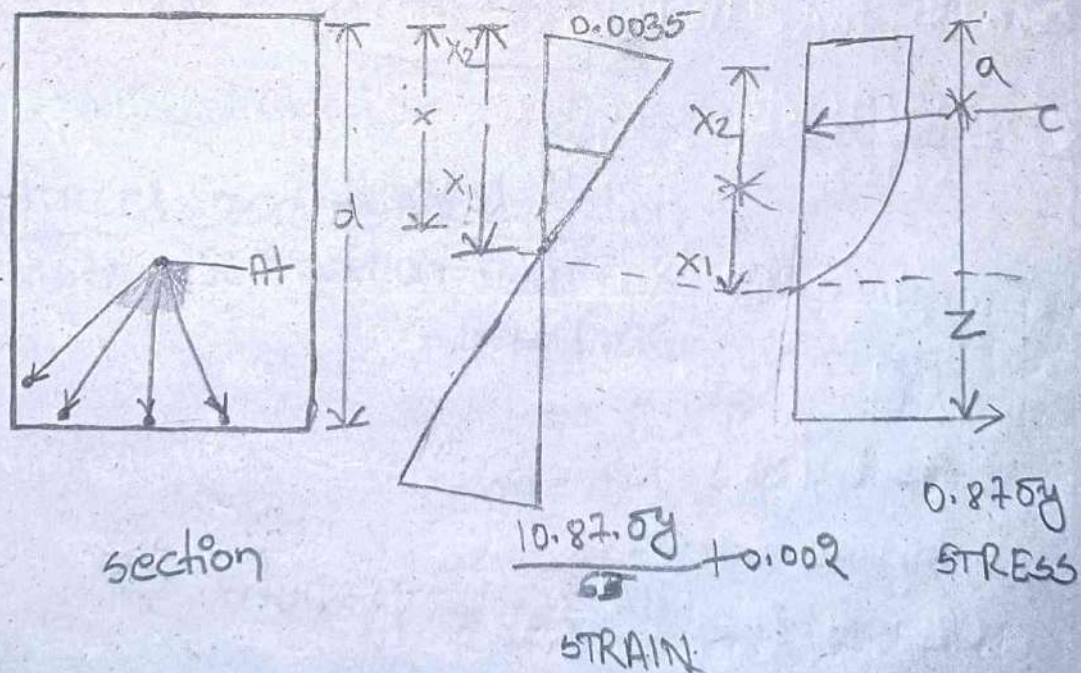


fig 5.3 stress block parameters

d/ The tensile strength of concrete is ignore
e/ The stress in reinforcement is derived from the representative stress-strain curve for the type of steel used as shown in figs 4.9 and 4.10 and.

f/ The maximum strain in tension reinforcement in the section at failure should not be less than the following.

$$\epsilon_s \geq \frac{\sigma_y}{1.15 E_s} + 0.002$$

where

σ_y = characteristic strength of steel

E_s = Modulus of elasticity of steel

ϵ_s = strain in steel at failure.

$$C_2 = \text{average stress} \times \text{area of beam} \times \text{effective} \\ = \frac{e}{3} (0.45 f_{ck}) \times B \times \frac{y}{7} \times x_u$$

$$= 0.1714 f_{ck} B \cdot x_u$$

for y_2

$$= \frac{3}{7} x_u + \frac{3}{8} \left(\frac{y}{7} x_u \right)$$

$$= \frac{3}{7} x_u + \frac{3}{14} x_u$$

$$= \frac{9}{14} x_u$$

total C force = $C_1 + C_2$

$$C = (0.1928 + 0.1714) f_{ck} \cdot B \cdot x_u$$

$$= 0.3642 f_{ck} \cdot B \cdot x_u$$

As per code

$$C = 0.36 f_{ck} B \cdot x_u$$

Location for C from top

$$\bar{y} = \frac{C_1 y_1 + C_2 y_2}{C_1 + C_2} = \frac{(0.1928 \times \frac{3}{7} x_u) + (0.1714 \times \frac{9}{14} x_u)}{0.1928 + 0.1714}$$

$$\bar{y} = 0.41598 x_u$$

$$\bar{y} = 0.42 x_u$$

$$\bar{y} = 0.42 x_u$$

Lever arm (L.A)

$$L.A = d - \bar{y} = d - 0.42 x_u$$

c) total force

$$T = 0.87 f_y (A_{st})$$

$$T = 0.87 f_y A_{st}$$

$$C = 0.36 f_{ck} \cdot B \cdot x_u$$

$$T = 0.87 f_y A_{st}$$

Ultimate moment of resistance (factored value)

$$M_u \Rightarrow C \cdot (L_A) = T \cdot (L_A)$$

$$\Rightarrow 0.36 f_{ck} B \cdot x_u (d - 0.42 x_u) = 0.87 f_y A_{st} (d - 0.42 x_u)$$

Working moment of resistance

$$M_R (\text{working}) = \frac{M_u}{1.5}$$

(actual maximum moment that can be applied on beam)

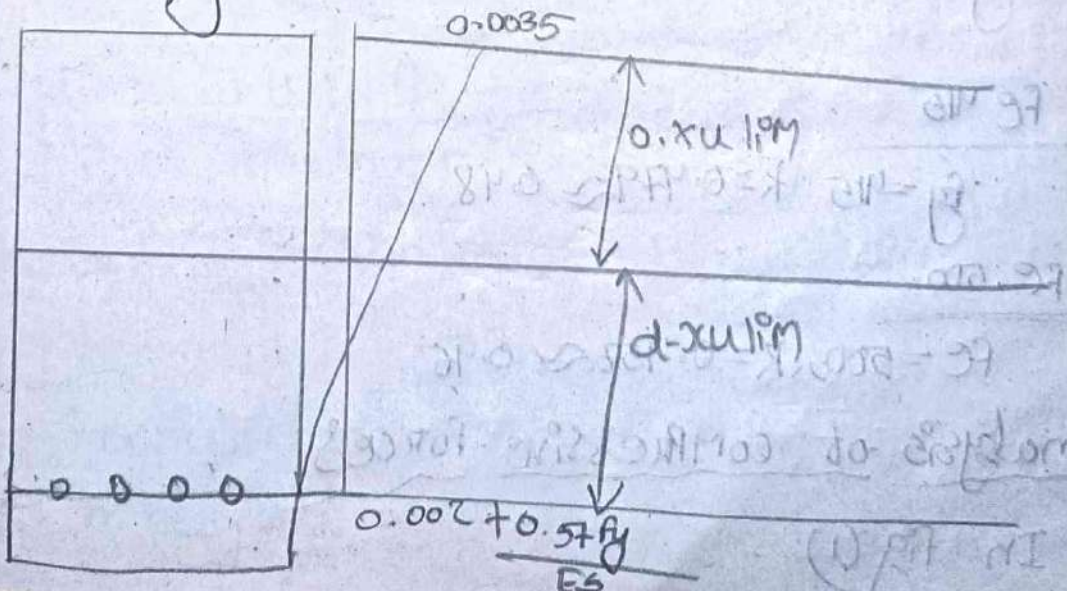
1) Actual depth of Neutral axis

In LBM Actual depth of neutral axis is always found by equating total force of compression and total force of tension.

$$0.36 f_{ck} \cdot B \cdot x_u = 0.87 f_y \cdot A_{st}$$

$$\Rightarrow \boxed{x_u = \frac{0.87 f_y A_{st}}{0.36 f_{ck} B}}$$

$\Rightarrow$ Limiting depth of Neutral axis



from similar triangle

$$\frac{d - x_{ulim}}{x_{ulim}} = \frac{0.002 + 0.87 f_y}{E_s}$$

$$f_y = 2 \times 10^5$$

$$\Rightarrow \frac{d}{x_{ulim}} + 1 = \frac{400 + 0.87 f_y}{700}$$

$$\Rightarrow \frac{d}{x_{ulim}} - 1 = \frac{400 + 0.87 f_y}{700}$$

$$\Rightarrow \frac{d}{x_{ulim}} = \frac{400 + 0.87 f_y}{700}$$

$$\Rightarrow \frac{x_{ulim}}{d} = \frac{700}{1100 + 0.87 f_y} = k$$

Limiting Neutral axis depth factor

$$x_{ulim} = k \cdot d$$

$$k = \frac{700}{1100 + 0.87 f_y}$$

Fe 250

$$f_y = 250, k = 0.5313 \approx 0.53$$

Fe 415

$$f_y = 415, k = 0.479 \approx 0.48$$

Fe 500

$$f_y = 500, k = 0.456 \approx 0.46$$

Analysis of compressive forces

In fig (i)

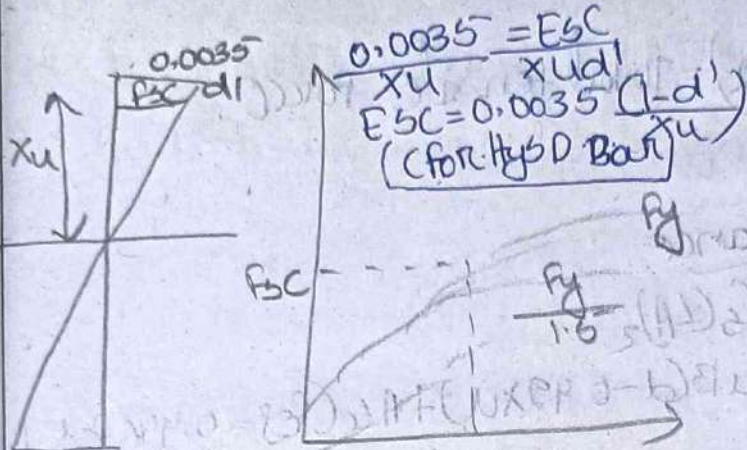
$$c_e = 0.36 f_{ck} B \cdot x_u$$

In fig (2)

$$C_g = f_{sc} - (0.446 f_{ck}) A_{sc}$$

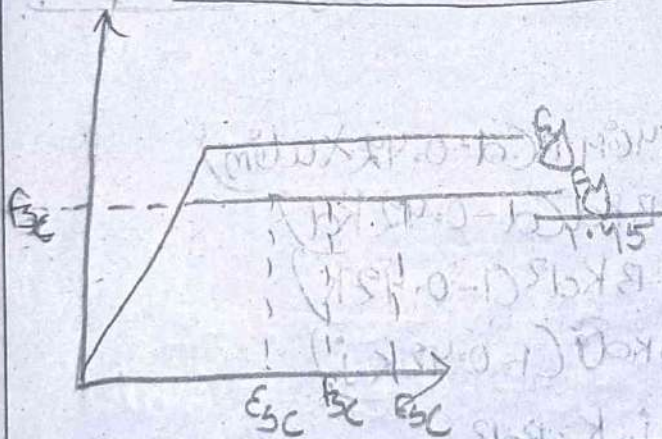
Total compressive force

$$C = 0.36 f_{ck} x_u B + A_{sc} (f_{sc} - 0.446 f_{ck})$$



(for mild steel)

$$\text{for mild steel} = 0.87 f_y = f_{sc}$$



$$\text{Lever arm in fig-1} = d - 0.42 x_u$$

$$\text{Lever arm in fig-2} = d - f$$

Analysis of tension force

fig-1

T_1 = force in steel

$$T_1 = 0.87 f_y A_{st}$$

Ag-2

$T_2 = \text{force in steel}$

$$T_2 = 0.87 f_y$$

$$T = T_1 + T_2$$

$$= 0.87 f_y (A_{st1} + A_{st2})$$

$$T = 0.87 f_y (A_{st1} + A_{st2}) = \text{Total tensile force}$$

$$T = 0.87 f_y A_{st}$$

Moment of resistance

$$(MOR)_c = E (CA)_1 + C_s (CA)_2$$

$$(MOR)_c = 0.36 f_{ck} x_u B (d - 0.42 x_u) + A_{sc} (f_{cs} = 0.446 f_{cs}) (d - d)$$

$$(MOR)_T = T_1 (LA)_1 + T_2 (LA)_2$$

$$(MOR)_T = 0.87 f_y A_{st} (d - 0.42 x_u) + 0.87 f_y A_{st2} (d - d)$$

Note:-

$$\begin{aligned} BM_u = MU &= 0.36 f_{ck} x_u B (d - 0.42 x_u) \\ &= 0.36 f_{ck} B K d (d - 0.42 K d) \\ &= d \cdot 36 f_{ck} B K d^2 (1 - 0.42 K) \\ &= 0.36 f_{ck} B K d^2 (1 - 0.42 K) \end{aligned}$$

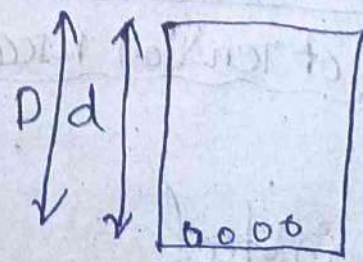
$$BM_u = MU = 0.36 f_{ck} j \cdot K \cdot B d^2$$

$$MU = Q B d^2 \quad (Q = 0.36 f_{ck} j \cdot K)$$

$$MU = Q B d^2$$

$$d^2 = \frac{MU}{QB}$$

$$d = \sqrt{\frac{MU}{QB}}$$



Th2. STRUCTURAL DESIGN– II

Name of the Course: Diploma in Civil Engineering			
Course code:		Semester	5th
Total Period:	60	Examination	3 hrs
Theory periods:	4P / week	Internal Assessment :	20
Maximum marks:	100	End Semester examination:	80

A. RATIONALE

The course aims at imparting skills to design structural members. This will enable the students to recognize the load conditions and possible failure locations so that student will be able to compute necessary dimensions to prevent failure.

B. COURSE OBJECTIVES

On completion of the course, a student will be able to-

1. Design simple steel structure such as tension members, compression members and simple beams.
2. Design timber structural elements
3. Design staircase, footings by limit method of design.
4. Draw the details of a steel roof truss.
5. Draw the reinforcement details of underground RCC water tank and RCC footings.
6. Use standards and design codes.

C. TOPIC WISE DISTRIBUTION OF PERIODS

Chapter	Name of topics	Hours
1	Introduction:	5
2	Structural Steel Fasteners and Connections.	10
3	Design of Steel tension Members	10
4	Design of Steel Compression members.	10
5	Design of Steel beams:	10
6	Design of Tubular Steel Structures	6
7	Design of Masonry Structures	9

D. COURSE CONTENT IN TERMS OF SPECIFIC OBJECTIVES

- 1 Introduction:**
 - 1.1 Common steel structures, Advantages & disadvantages of steel structures.
 - 1.2 Types of steel, properties of structural steel.
 - 1.3 Rolled steel sections, special considerations in steel design.
 - 1.4 Loads and load combinations.
 - 1.5 Structural analysis and design philosophy.
 - 1.6 Brief review of Principles of Limit State design.
- 2 Structural Steel Fasteners and Connections.**
 - 2.1 Bolted Connections
 - 2.1.1 Classification of bolts, advantages and disadvantages of bolted connections.

- 2.1.2 Different terminology, spacing and edge distance of bolt holes.
- 2.1.3 Types of bolted connections.
- 2.1.4 Types of action of fasteners, assumptions and principles of design.
- 2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity & bearing capacity), reduction factors, and shear capacity of HSFG bolts.
- 2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces)
- 2.1.7 Efficiency of a joint.
- 2.2 Welded Connections:
- 2.2.1 Advantages and Disadvantages of welded connection
- 2.2.2 Types of welded joints and specifications for welding
- 2.2.3 Design stresses in welds.
- 2.2.4 Strength of welded joints.

3 Design of Steel tension Members

- 3.1 Common shapes of tension members.
- 3.2 Maximum values of effective slenderness ratio.
- 3.4 Analysis and Design of tension members. (Considering strength only and concept of block shear failure.)

4 Design of Steel Compression members.

- 4.1 Common shapes of compression members.
- 4.2 Buckling class of cross sections, slenderness ratio
- 4.3 Design compressive stress and strength of compression members.
- 4.4 Analysis and Design of compression members (axial load only).

5 Design of Steel beams:

- 5.1 Common cross sections and their classification.
- 5.2 Deflection limits, web buckling and web crippling.
- 5.3 Design of laterally supported beams against bending and shear.

6 Design of Tubular Steel Structures:

- 6.1 Round Tubular Sections, Permissible Stresses
- 6.2 Tubular Compression & Tension Members
- 6.3 Joints in Tubular trusses

7 Design of Masonry Structures:

- 7.1 Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.

E. SYLLABUS COVERGE UPTO INTERNAL ASSESSMENT Chapters 1,2,3,4

F. BOOKS RECOMMENDED

Sl. No	Name of Authors	Titles of Book	Name of Publisher
1	B.N.Duggal	Design of Steel Structures	McGraw Hill Education
2	Samal & Panigrahi	Elements of Steel, Timber & Masonry Design	Kalyani Pbln
3	Samal & Panigrahi	Steel Tables	Kalyani Pbln
4	BIS.	1) I.S 800-Code of practice for General construction in steel	BIS

		2) SP-20 Hand book on masonry design and construction- BIS Publication. 3) IS 806: 1968 Code of practice for use of steel tubes in general building construction. 4) IS 1161: 1998 Steel Tubes for Structural Purposes – Specification	
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1.1 COMMON STEEL STRUCTURES

Steel has high strength per unit mass. Hence it is used in constructing large column-free structures. The following are the common steel structures in use

1. Roof trusses for factories, cinema halls, auditoriums etc.
2. Trussed bents, crane girders, columns etc., in industrial structures
3. Roof trusses and columns to cover platforms in railway stations and bus stands.
4. Single layer or double layer domes for auditoriums, exhibition halls, indoor stadiums
5. Plate girder and truss bridges for railways and roads
6. Transmission towers for microwave and electric power.
7. Water tanks
8. Chimneys etc.

(*) Advantages of steel

- 1) It has a high strength.
- 2) Time of construction is less.
- 3) It has a ductile failure (i.e. does not fail suddenly).

(4) Repair & modification is easy.

(5) Steel has 100% scrap value.

(6) ~~It~~ steel has high $\left(\frac{\text{strength}}{\text{weight}}\right)$ ratio.

(This enables to make or construct High rise building).

(Construct long span bridges)

1.3 Dis-advantages of steel

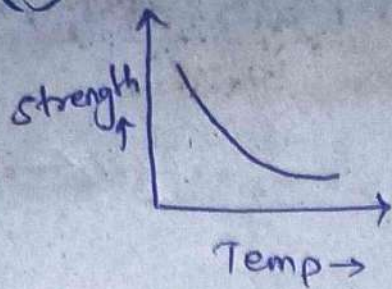
- 1) Steel is highly susceptible to corrosion when exposed to atmosphere.

Note $\rightarrow$ Corrosion is a electro chemical process in which iron present inside steel get oxidised & form rust.

$\downarrow$
(Brown precipitate)

Corrosion is resisted by frequent painting / coating of steel. Also galvanising can be done.

(2.1)



steel requires fire proof treatment.

(3) steel can fail by Brittle fracture.

(steel fails suddenly)

→ Low temperature & sudden loading.

(4) Fatigue failure → Reversal of stresses. / Dynamic loading.

1.5 structural steel

It is a low carbon steel (0.1-0.25) percent added with certain alloys (for eg - Cr, Mn, V etc).

& mainly used in steel structural member.

There are different types of structural steel used:-

⑧ Note

- Structural steel is designated by ultimate strength
- Grade A → It is used in ^{structure} subjected to normal condition.
- Grade B → It is used in structure where ~~ser~~ service temperature does not fall below zero degree celcius.

(ii) Reversal of stress.

- Grade-C → It is used when temperature can fall ~~or~~ upto -40°C & Impact loading.

→ Yield strength of structural steel ^{reduce} with increase in ~~thick~~ thickness of the specimen.

Mechanical properties which are independent of grade of steel. (physical properties)

1) Modulus of elasticity (E) = $2 \times 10^5 \text{ MPa}$

2) Shear modulus (G) = $0.769 \times 10^5 \text{ MPa}$

3) Poisson's ratio (μ) = $0.30 \left\{ \begin{matrix} 15000: 2007 \\ 0.25 \left\{ \begin{matrix} 15000: 1984 \end{matrix} \right\} \end{matrix} \right\} \rightarrow \begin{matrix} \text{Elastic} \\ \text{Range} \end{matrix}$

Plastic Range.

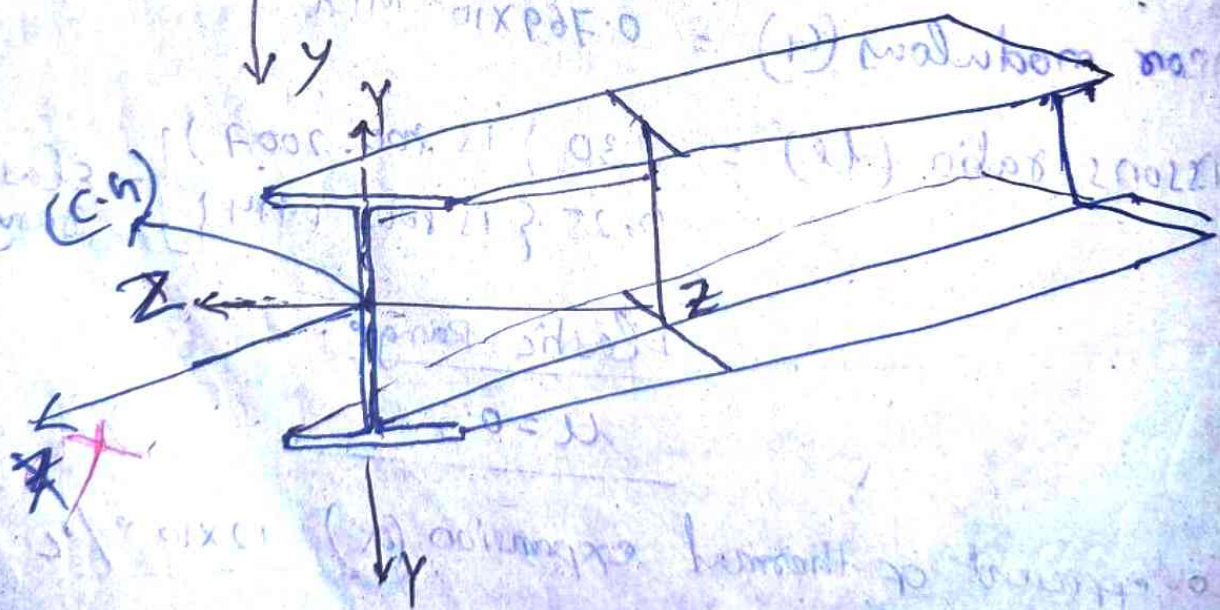
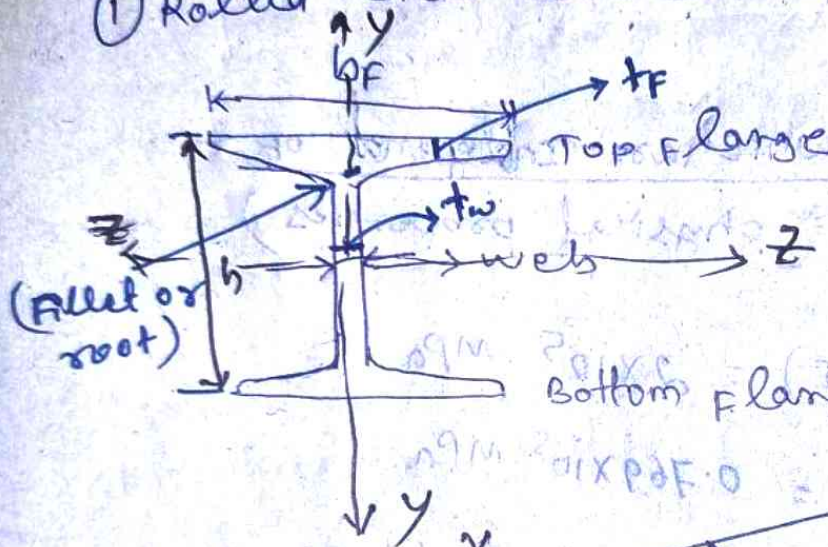
$\mu = 0.5$

4) Co-efficient of thermal expansion (α) = $12 \times 10^{-6} / ^{\circ}\text{C}$

5) Density of steel = 7850 kg/m^3 .

Various type of rolled steel section

① Rolled steel I-section (or) Beam section



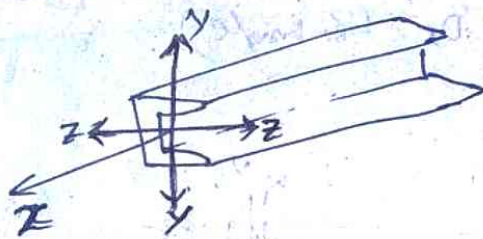
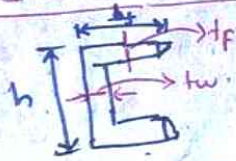
● There are five series of steel beam

- ISLB $\rightarrow$ Indian standard light weight beam.
- ISMB $\rightarrow$ Indian standard medium weight beam
- ISHB $\rightarrow$ Indian standard heavy beam
- ISWB $\rightarrow$ Indian standard wide flange beam
- ISJB $\rightarrow$ Indian standard junior beam.

Note

- $\rightarrow$ maximum depth beam is 600mm or 60cm.
- $\rightarrow$ out of all shape for a given area I-section provides largest value of moment of inertia about Z-Z axis. (i.e. High Bending strength about Z-Z axis)
- $\rightarrow$ (There for it is considered as best section beams or girders.)

Rolled steel channel section



Major principal axis - Z-Z axis
 Minor principal axis = Y-Y axis.

Channel sections are also designated by abbreviation, Total depth & self weight.

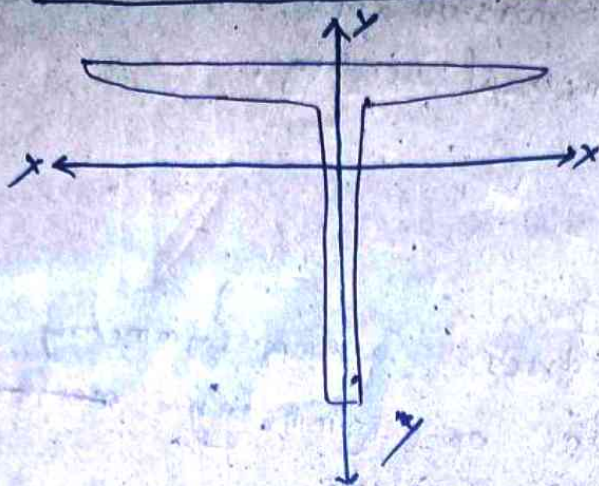
For eg - ISLC 200 @ 150.6 N/m

Various type of channel sections are

- ISLC $\rightarrow$ Indian standard light channel section
- ISM C $\rightarrow$ Indian standard medium weight channel section
- ISJC $\rightarrow$ Indian standard junior channel section
- ISSC $\rightarrow$ Indian standard special channel section



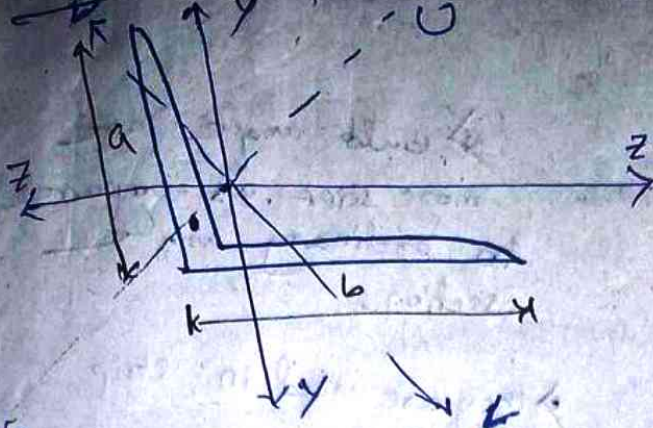
Rolled steel Tee-section



- They are also designated as total depth of self weight.
- ⊗ Various type of Tee-section manufactured as
 - ① ISNT → Indian standard normal Tee-section.
 - ② ISOT → Indian standard Deep legged Tee-section.
 - ③ ISJT → Indian standard Junior Tee-section.
 - ④ ISLT → Indian standard Light Tee-section.

- Tee-Brackets plates are used in type-2 connection.
it is ~~also~~ also used as tension member.
- They are also used in water tanks.

Rolled steel angle section



{ Height moment ~~intensity~~ of inertia is given by
U-V axis }

Major principal axis $\rightarrow I_{uu}$

Minor principal axis $\rightarrow I_{vv}$

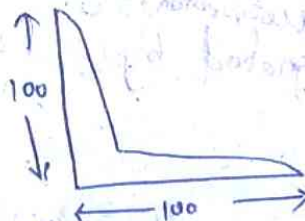
They are designated by leg sizes ($a \times b$) & thickness

Shear center lies on U-V axis

There are 3-types of angle section manufactured.

① Equal angle

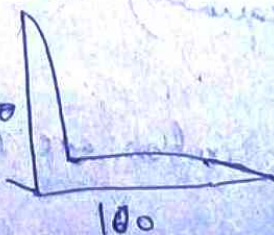
for eg: $100 \times 100 \times 6$



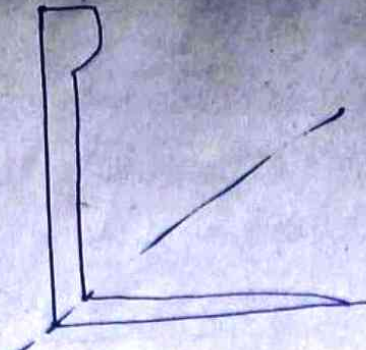
②

Unequal angle

for eg: $100 \times 60 \times 8$

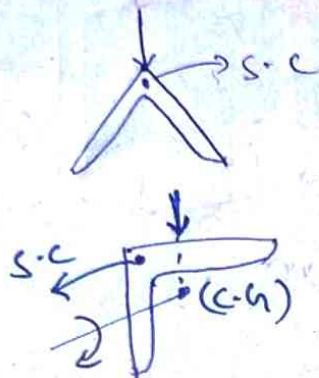


④ Bulb angle sections

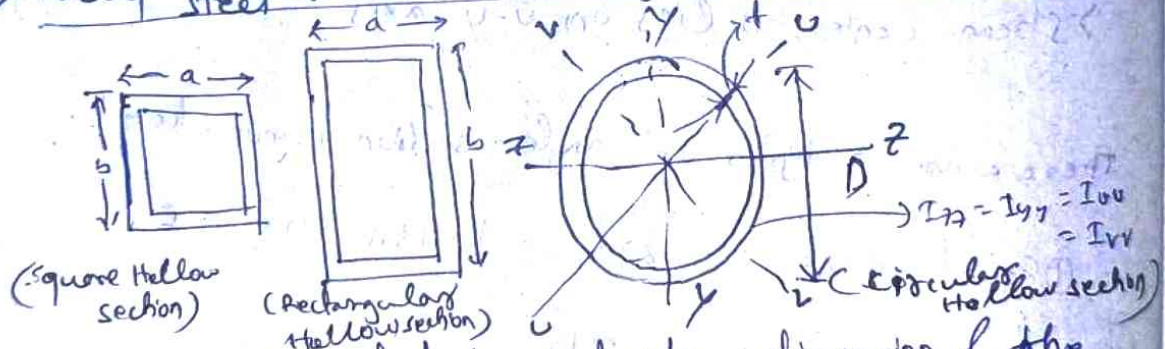


➤ Bulb angle are more stiff as compare to ordinary angle section.

➤ they are used in ship construction.



5) Rolled steel Hollow section (or) tube section



➤ They are designated by outside dimension of the thickness.

➤ Hollow circular sections are most efficient in case of compression members, as the area of the steel is distributed equally about all axis.

➤ Hollow/Tubular section are ideal for resisting twisting moment also.

6) Rolled steel flat section



They are designated by width & thickness

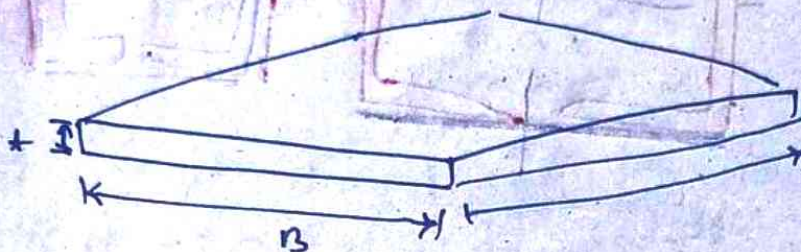
~~100/5F100~~

100/5F100

↓
width

↓
thickness

7) Rolled steel plate section ($t \geq 5\text{ mm}$)



They are designed by all three dimension

For eg -> IS PL 2000 x 1000 x 10 mm

used -> ① Base plate

② Gusset plate

⑧ Rolled steel sheets ($t < 5\text{ mm}$)

⑨ Rolled steel strip ($t < 5\text{ mm}$)

⑩ Rolled steel Bar or rod.

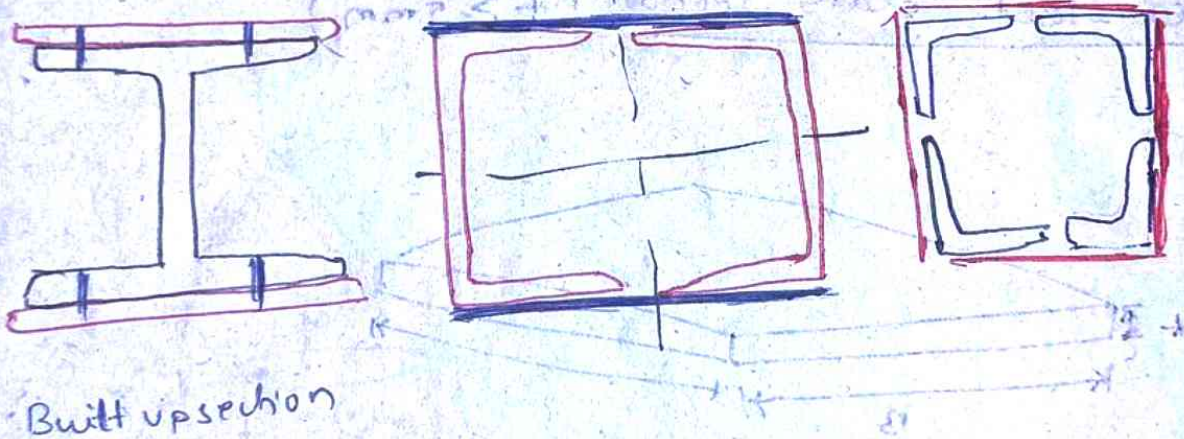


IS SP → Indian standard square Bar
IS RD → Indian standard rounded Bar

~~Built up section~~

Built up section

When applied loading is very large, such that even the largest rolled steel section available is not able to provide sufficient strength, then built up section is used.



Stress-strain curve for structural steel

→ This curve is plotted by performing tensile test on steel specimen.
(gradual load of uniaxial load)

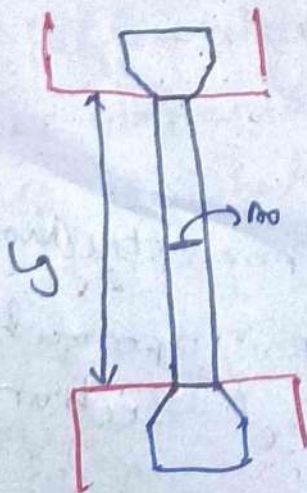
→ Observation → Load (P) & deformation (Δ).

→ Plot → stress of strain.

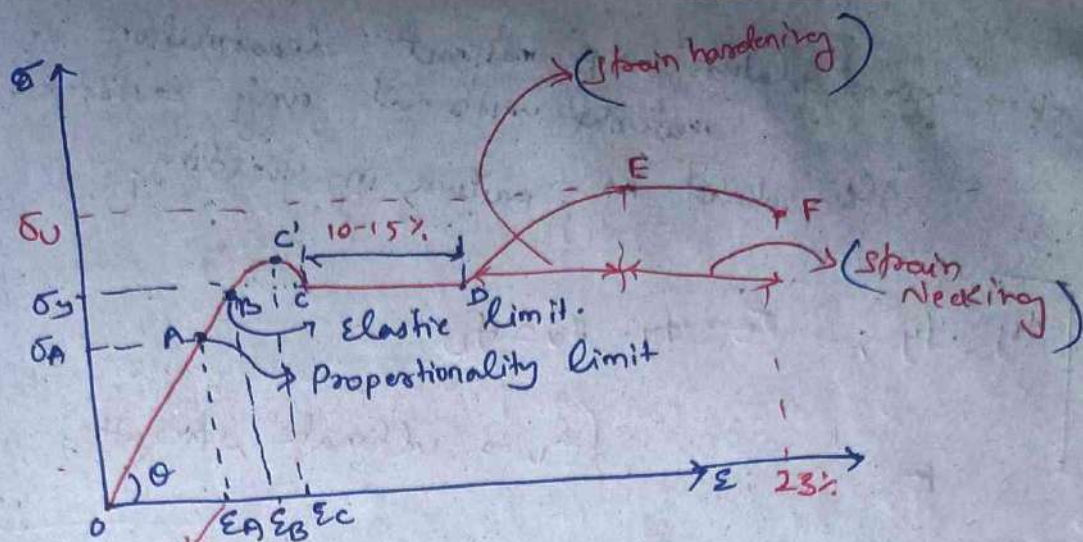
→ The Length of specimen to be tested is gauge length

$$L_g = 5.65 \sqrt{A_0}$$

A_0 → original cross-sectional area.



Failure :
(cup & cone area)



0.2%
A → Proportional Limit

Up to this point stress $\propto$ strain

$$\sigma \propto \epsilon$$

$$\sigma = E \epsilon$$

$$E = \frac{\sigma}{\epsilon}$$

E → modulus of elasticity or young's modulus.

$$\text{Slope} = \tan \theta = \frac{\sigma_A}{\epsilon_A} = E$$

Note - Up to point 'A' slope of stress strain curve is same.

→ B → elastic limit
↳ If load is removed material will regain its shape, size & geometry.

C' → upper yield point
C → lower yield point.

(In many many cases upper yield point will not be observed).

→ Upper yield point is observed if rate of loading is fast, it is not observed in structural steel manufactured through hot working.

→ L.Y.P is used to designate yield strength of material.

CO $\rightarrow$ yield plateau $\rightarrow$ permanent deformation in material without any resistance
"also called as failure in yielding."

$$\left[\begin{array}{l} \sigma_y = f_y, \quad \sigma_u = f_u \\ \text{too} \end{array} \right. \quad (f_u \rightarrow \text{ultimate strength})$$

E $\rightarrow$ ultimate stress
If f_u stress is developed then material will fail by fracture or rupture

F $\rightarrow$ Breaking or fracture point
Shape $\rightarrow$ cup & cone failure.

E-F $\rightarrow$ Necking (Reduction in the area of the cross-section of specimen)

Specification of steel [Indian standard code has provided specification for designing the structure]

② IS 875 $\rightarrow$ code of practice for design load.

IS 800 $\rightarrow$ Des Part 1 $\rightarrow$ Dead load
Part 2 $\rightarrow$ Live / imposed load
Part 3 $\rightarrow$ wind load
iv $\rightarrow$ snow load
v $\rightarrow$ special load

③ IS 1893 $\rightarrow$ Earthquake loading

④ IS 800 $\rightarrow$ Designing steel buildings.

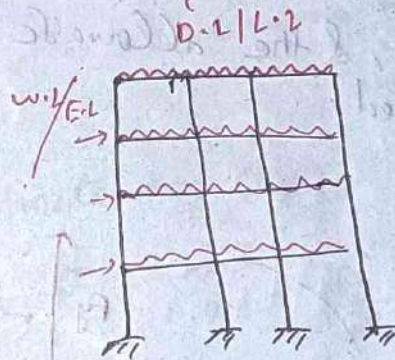
Design → It is a process in which suitable material with appropriate dimensions & shape is selected for a structure member so, that it can sustain loading without any failure.

There are different philosophies for designing structure

Design philosophy - It is art of thinking which gives scientific explanation to design structural elements.

→ Generally steel structures are designed using following 3 philosophy

① Working stress method



(Combination of load)

Service load → most of the time act on the structure

(As per working stress method philosophy structure will design for worst combination of service or working load)

Combination of loads are

- 1) $D.L + L.L$ (Normal)
 - 2) $D.L + W.L / E.L$ (Normal)
 - 3) $D.L + L.L + W.L / E.L$ (rare condition)
- max. (worst combination of loading)

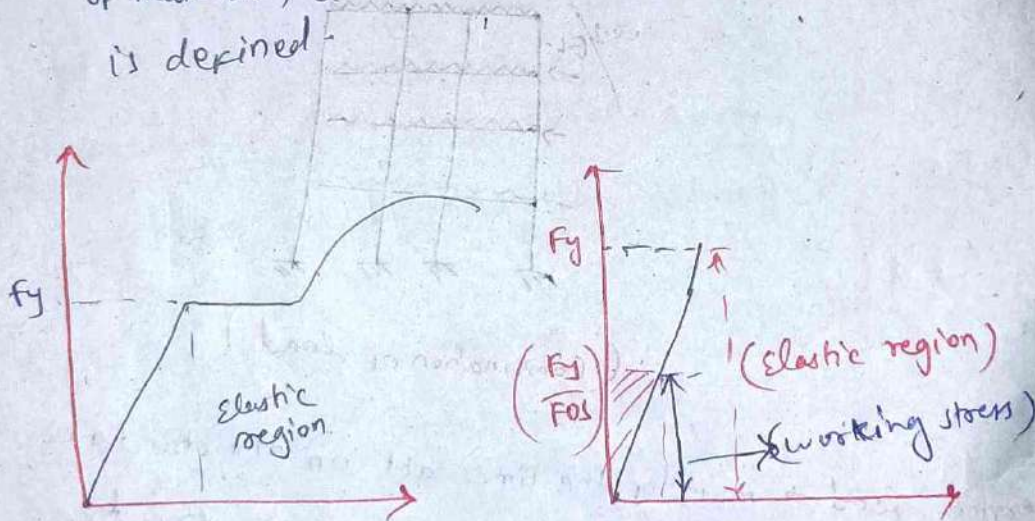
Note → Either $W.L$ or $E.L$ is considered combination, because both of them will act together having very less probability.

In w.s.m, material is assumed to behave linear elastic under loading. (i.e plastic strength is neglected).

- There are some uncertainties in design :-
- a) Over loading / Exceeding from Anticipated load.
 - b) ~~Strong~~ uncertainty in strength of material.
 - c) Secondary Effects → Poor workmanship, mishandling of material.

To overcome all these uncertainties a factor of safety is required

* This factor of safety applied over yield strength of material, & the allowable or permissible stress is defined -



$$\sigma_{\text{allow or permissible}} = \frac{\text{Yield stress}}{FOS}$$

For safety

$$\text{Working stress} < \text{Permissible stress}$$

→ For working stress method → worst combination of load is considered
 → service load is considered

$$\rightarrow \frac{P}{A_{required}} = \frac{P}{A_{allowed}} = \frac{P}{\frac{F_y}{FOS}} = \frac{(FOS) P}{F_y}$$

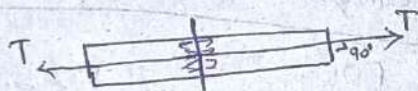
Sections design by working stress method are large in size also uneconomical also. But they are provide more safety.

W.S.M defines failure on the basis of stress (i.e. which is not correct).

Load are considered to act at its maximum value with same frequency (i.e. not correct).

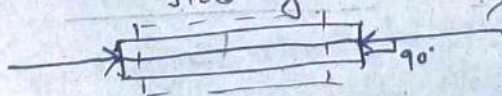
Permissible value of stress as per working stress method.
 (IS 800:1984)

→ Permissible axial tensile stress (σ_{at}) = $0.6 F_y$.



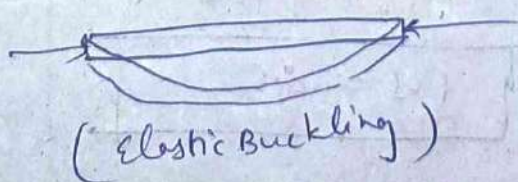
$$FOS = \frac{F_y}{\sigma_{at}} = \frac{F_y}{0.6 F_y} = 1.67$$

→ Maximum value of permissible compressive stress.



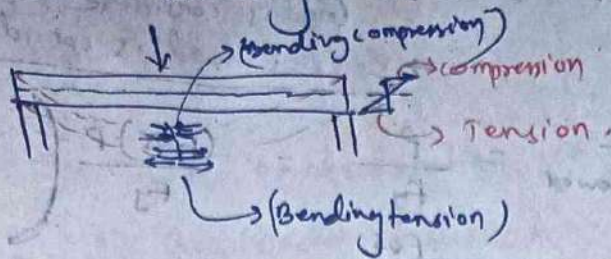
$$\sigma_{ac} = 0.6 F_y \text{ (elastic buckling)} \\ (FOS = 1.67)$$

If members short enough (yield failure)
 " " long " (lateral buckling)



$$\text{In general} \\ \sigma_{ac} \leq 0.6 F_y$$

③ Permissible Bending tensile stress.

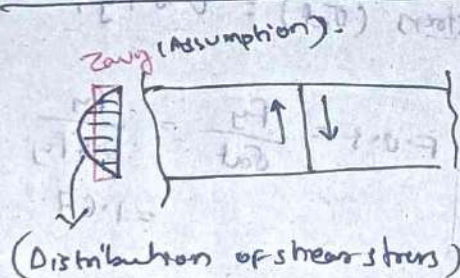


$\sigma_{bt} = 0.66 F_y$
$FOS = \frac{F_y}{0.66 F_y} = 1.51$

④ Maximum value of permissible Bending compressive stress

$\sigma_{bc} = 0.66 F_y$
$FOS = 1.51$

⑤ Permissible maximum value of shear stress



$Z_{max} = 0.45 F_y$
$FOS = \frac{F_y}{0.45 F_y} = 2.22$

By experiment

shear strength = $\frac{\text{tensile strength}}{13}$

$Z_{avg} = 0.40 F_y$
$FOS = 2.5$

**SAMANTA CHANDRASEKHAR INSTITUTE
OF TECHNOLOGY & MANAGEMENT**
SEMILIGUDA-764 036, KORAPUT

DEPT. OF Civil Engineering

LESSON PLAN AND PROGRESS REGISTER

(To be maintained by all members of the teaching staff)

SESSION 2023-24

NAME

Abnora Hial

DESIGNATION

Lecturer

DEPT.

Civil Engineering

Abnora Hial

SIGNATURE

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COURSES ALLOTTED

FOR DIFFERENT BRANCHES & SEMESTER (Degree/Diploma/+2 Science)

[illegible]

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LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 4th semester Branch Civil engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-1 &	<u>Working stress method (WSM)</u>	
24-1-24	Structure of Design-1	1.1) Objectives of design and detailing.	01
		state the different methods of design of concrete structure.	
25-1-24		Introduction to reinforced concrete, R.C. sections their behavior, grades of concrete and steel, Permissible stresses, Assumptions in W.S.M	01
27-1-24		Flexural design and analysis of single reinforced sections from first principles	01
29-1-24		Concept of under reinforced, over reinforced and balanced sections	01
		Advantages and dis-advantages of WSM, reasons for its obsolescence.	
		<u>Philosophy of limit state method (LSM)</u>	
30-1-24		Defination, advantages of LSM over WSM, IS code suggestions regarding design philosophy	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 4th semester

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-1 &	Types of limit states, partial safety factors for material	
31-1-24	structural design-1	strength, characteristic strength, characteristic load, design load, loading on structure as per I.S. 875.	01
		study of IS code specification	
8-2-24		regarding spacing of reinforcement in slab, covers to reinforcement	01
		in slab, beam column & footing, minimum reinforcement in slab,	
		beam & column, lapping, anchorage, effective span for beam & slab.	
		Analysis and Design of single and Double Reinforced sections (LSM).	
9-2-24		Limit state of collapse (flexure), Assumptions, stress-strain relationship for concrete and steel, neutral axis,	
10-2-24			
12-2-24			
13-2-24			
		stress block diagram and strain diagram for singly reinforced section	04

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 4th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	th-1 of	Concept of under-reinforced, over-reinforced and limiting	
15-2-24	Structure of	section, neutral axis co-efficient	04
16-2-24	Design-1	Limiting value of moment of resistance and limiting percentage of steel required	
17-2-24		for limiting singly R.C. section	
19-2-24			
20-2-24		Analysis and design: determination of design constants, moment of resistance and area of steel for rectangular sections	04
21-2-24			
22-2-24			
23-2-24			
24-2-24		Necessity of doubly reinforced section, design of doubly reinforced rectangular section.	03
26-2-24			
27-2-24			
		Shear, Bond & Development Length (LSM).	
		Nominal shear stress in R.C section, design shear strength of concrete, maximum shear stress, design shear reinforcement, minimum shear reinforcement, forms of shear reinforcement	01
28-2-24			

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 4th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
29-2-24	Th-1 &	Bond & types of Bond, Bond stress, development	01
	structural design-I	length in tension and compression	
1-3-24		Anchorage value for hook 90° Bend and 45° Bend standards	01
		Lapping of bars, checking development length.	
		Numerical problems on deciding whether shear reinforcement is required or not, check for adequacy of	01
2-3-24		the section in shear, Design of shear reinforcement in beams (Explain through example)	
4-3-24 6-3-24		<u>Analysis and Design of T-Beam (LSM)</u>	05
7-3-24 9-3-24		General features, advantages, Effective width of flange	
11-3-24		as per IS 456-2000 code provision	
12-3-24		Analysis of singly reinforced T-Beam, strain diagram and	05
13-3-24 14-3-24		stress diagram, depth of neutral axis, moment of	
15-3-24 16-3-24		resistance of T-Beam section with neutral axis lying	
		within the flange	

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 4th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-1 &	Simple numerical problem on deciding effective flange	05
18-3-24	structural	width (Problems only on finding moment of resistance	
19-3-24	Design	of T-Beam section when N.A lies within or up to the	
20-3-24		bottom of flange shall be asked in written examination)	
21-3-24			
22-3-24			
		<u>Analysis and Design of slab and staircase (LSM)</u>	
23-3-24		Design of simply supported one-way slabs for flexure	03
27-3-24		check for deflection control and shear.	
28-3-24			
30-3-24		Design of one-way cantilever slabs and cantilever stairs	03
2-7-24		chajjas for flexure check, for deflection control and check for	
3-7-24		development length and shear.	
5-4-24			
6-4-24			
8-4-24		Design of two-way simply supported slabs for flexure with corner free to lift	03
9-4-24		Design of Dog legged staircase	03
10-4-24			
13-7-24			
15-4-24		Detailing of reinforcement in stairs spanning longitudinally	03
16-4-24			
16-7-24			

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 2th semester Branch civil engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	<u>Th-1</u>	<u>Design of Axially Loaded columns and footing (LSM)</u>	
18-4-24	structural design-1	Assumptions in limit state of collapse - compression	01
18-4-24 19-4-24 19-4-24		Definition and classification of columns, Effective length of column, specification for minimum reinforcement, cover	04
20-4-24		maximum reinforcement	
20-4-24 22-4-24		Number of bars in rectangular, square and circular sections, diameter and spacing or lateral ties	03
23-4-24 23-4-24		Analysis and design of axially loaded short square, rectangular and circular column with lateral ties only	05
24-4-24 24-4-24			
25-4-24			
25-4-24 26-4-24		Types of footing, Design of isolated square column footing of uniform thickness	05
26-4-24 27-4-24			
29-4-24		For flexure and shear	

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DEPT. Civil Engineering

Abnora Hial
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COURSES ALLOTTED

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LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Theory concrete	1. concrete as a construction material.	
24.1.24	Technology	1.1. Grade of concrete	01
27.1.24		1.2 Advantages and disadvantages of concrete.	01
29.1.24		2. cement	
30.1.24 31.1.24		2.1 Composition, hydration of cement, water-cement ratio	04
2.2.24		and compressive strength, fineness of cement, setting time, sound-	
		ness, types of cement	
		3. Aggregate, Water and Admixture	
3.2.24 5.2.24		3.1 Classification and characteristics of aggregate, Fineness	02
		modulus, grading of aggregate IS 383.	
6.2.24 7.2.24		3.2 Quality of water for mixing and curing	02
9.2.24 10.2.24		3.3 Important functions, classification of admixtures	02
		accelerating admixtures, retarding admixture	
		water reducing admixtures, air containing admixtures	
		4. properties of fresh concrete.	

LESSON PLAN

✓
Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

6th semester

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
12-2-24 13-2-24	Thy a	4.1 Concept of fresh concrete workability, Slump test,	06
16-2-24 17-2-24	concrete Technology	compacting factor test, V-bee consistency test and flow test	
19-2-24 20-2-24		requirement of workability.	
		5. Properties of Hardened concrete.	
21-2-24 23-2-24 24-2-24		5.1 cube and cylinder compressive strength, flexural strength	07
26-2-24 27-2-24		of concrete, stress-strain and elasticity, phenomena	
28-2-24 1-3-24		of creep and shrinkage permeability, durability of	
		concrete, sulphate, chloride and acid attack on concrete	
		efflorescence.	
		6. Concrete Mix Design.	
2-3-24		6.1 (a) Introduction	01
		(b) Data and Input required for mix-design	
4-3-24 6-3-24		6.2 Nominal mix and design mix concrete	02
7-3-24		6.3 Basic consideration for concrete mix-design	02
9-3-24		methods of proportioning concrete mix IS code method of mix design.	

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
11-3-24 12-3-24	Th(y) a	7. Production of concrete	06
13-3-24 14-3-24	concrete technology	7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete	
15-3-24 16-3-24		curing of concrete, Form-work requirement & types	
		stripping of concrete.	
		8. Inspection of Quality control of concrete	
18-3-24 19-3-24		8.1 Quality control of concrete as per IS code factor.	02
		causing the vibration in the quality of concrete	
20-3-24 22-3-24		8.2 Mixing, Transporting, placing and curing requirement of concrete as IS 456.	02
23-3-24		8.3 Inspection and Testing as per clause 17 of IS 456.	01
27-3-24		8.4 Durability requirements of concrete as per IS 456.	01
28-3-24		9. Special concrete	
30-3-24 2-4-24 3-4-24		9.1 Introduction of Ready mix concrete, high performance concrete, silica fume concrete.	06
5-4-24 6-4-24			

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	TH(4) a	shot-crete concrete or gunitting	
8.4.24 9.4.24	Concrete Technology	10. Detoriation of concrete and its prevention	06
10.4.24 12.4.24		10.1 Types of detoriation, prevention of concrete	
13.4.24 15.4.24		detuentionation, corrosion of reinforcements, effects and	
		prevention.	
		1.1. Repair Technology of concrete structure.	
		11. Symptoms, causes and prevention and remedy of	06
16.4.24		defects during construction cracking or	
18.4.24 19.4.24		concrete due to different reasons, repair	
24.4.24 25.4.24		of cracks for different purposes, selection of the	
26.4.24		techniques, polymer based repair, common types of	
		repair	
		Revision classes.	

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COURSES ALLOTTED

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Semister	Course No.	Course Title
6 th	Th-2	Construction management

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LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-2	Introduction to construction management	
24.1.24	construction management	1.1 Aims and objective of cost - vucation management	01
24.1.24		1.2 Functions of construction management	01
25.1.24		1.3 The construction team components owner engineer, architect, contractor - their function and interrelationship and Jurisdiction	01
30.1.24		1.4 Resources for construction management, men, machines, materials, money	01
		2. constructional planning	
		2.1 Importance of construction Planning	
31.1.24		2.2 Developing work break down structure for construction	01
1.2.24		2.3 construction Planning stages pre tender stage, Post tender stage,	01
5.2.24		2.4 construction scheduling by Bar charts, preparation of bar charts for simple construction works	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester	6th	Branch	Civil Engineering
Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-2 Construction management	2.5. Preparation of schedules for Labour materials, machinery.	01
6.2.24		2.5.1. Estimate for small works	
6.2.24		2.6 Limitation of Bar charts,	01
		2.7. Construction scheduling by network techniques definition	01
7.2.24		of terms, PERT and CPM techniques advantages and	
		disadvantages of two techniques network analysis, estimation	
		of time and critical path application of PERT and CPM	
		techniques in sample construction works	
		3. materials and stores management	
8.2.24 12.2.24		3.1 classification of stores storage of stock	02
13.2.24 13.2.24		3.2. Issue of materials. Index	02
		3.2.1. Issue, bon card	
		4 - construction site management	
15.2.24 19.2.24		4.1 Job layout - objectives.	02
		Review Plans, specification	
		layout of equipments.	

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
20-2-24	Th-2	4.2 Location of equipment, Organizing Labour at site	01
20-2-24	construction management	4.3 Job layout for different construction sites	01
21-2-24		4.4 Principles of storing materials at site.	01
22-2-24		5. Construction organization 5.1 Introduction - characteristics	01
26-2-24		Structure, importance 5.2 organization types Line and staff functions and their characteristics	01
27-2-24		5.3 Principles of organization management and significance at terms - control, authority, responsibility, job and task	01
27-2-24		5.4 Leadership - necessity, styles of Leadership, role of Leader	01
28-2-24		5.5 Human relations - relations with subordinates, peers superiors, characteristics of group behaviour mob	01
		Psychology, handling of grievances, absenteeism	
29-2-24		Labour welfare 5.6 conflicts in organization	01
		genesis of conflicts types - intrapersonal, interpersonal, intergroup resolving conflicts	

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-2	<u>6. Construction labour and Labour management,</u>	
4.3.24 6.3.24	Construction management	6.1 preparing Labour schedule 6.2 essential steps for optimum Labour output	02
7.3.24		6.3 Labour characteristics	01
11.3.24 12.3.24		6.4 wages & their payment 6.5 Labour incentives	02
13.3.24		6.6 motivation- classification of motives & different approaches to motivation	01
		7. Equipment management	
14.3.24 18.3.24		7.1 preparing the equipment schedule 7.2 identification of different alternative equipment	02
19.3.24		7.3 Importance of owning or operating costs in making decisions for hiring & purchase of equipment	01
19.3.24 20.3.24 21.3.24		7.4 inspection and testing of equipment 7.5 Equipment maintenance	03
		8. Quality control	
23.3.24		8.1 concept of quality in construction	01
28.3.24		8.2 Quality standards- during construction. other construction destructive & non-destructive methods	02

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
2.4.24	Th-2	9. monitoring progress 9.1 programme and progress of work	01
3.4.24 4.4.24	Construction management	9.2. work study	02
8.4.24 9.4.24 9.4.24		9.3 Analysis and control of physical and financial progress corrective measures	03
		safety management in construction	
10.4.24 15.4.24		10.1 Importance of safety 10.2 causes and effects of accidents in construction work	02
16.4.24 16.4.24		10.3 safety measures on work site for evacuation - scaffolding, formwork, fabrication and erection	02
18.4.24		demolition 10.4 Development of safety consciousness	01
22.4.24		10.5 safety legislation workmen compensation act, contract labour etc.	01
		11. Role of vulnerability Atia of India in construction projects	
23.4.24		1.1 Introduction to vulnerability Atia of India, concepts of natural hazards and disasters and vulnerability Atia of India Definition of disaster related terms	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 6th semester

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-2	Earthquake hazard and vulnerability, magnitude and intensity	
23.4.24	construction management	scales at earthquakes, seismic zones, earthquake hazard maps, types of structures and damage classification effects on housing and resistant measures.	01
24.4.24		11.3 wind/cyclone hazard and vulnerability wind speed and pressures, wind hazard and cyclone occurrence maps, storm shelter and cyclone resistant measures	01
26.4.24		11.4 flood hazard and vulnerability, flood hazard and flood prone areas at the country, general protection at habitancy and flood resistance construction	01
29.4.24		11.5 landslides, Tsunamis and thunderstorm hazards and vulnerability, Landslides and Thunderstorm incidence maps, measures against Tsunami hazard	01
30.4.24		11.6 Housing vulnerability, long hablen and usage of vulnerability urban at india in chion at vulnerability action in Reader documents	01

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COURSES ALLOTTED

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Semister

Course No.

Course Title

3rd semester

Th-3

Building
material & construction Technology.

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LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

3rd

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-3 Building	PART: A Building materials	
	Materials construction	1. Stone	
14.8.23	Technology	1.1 classification of rocks, use of stone. natural bed of stone	02
16.8.23 17.8.23		1.2. Qualities of good building stone	01
19.8.23		1.3 Dressing stone -	01
21.8.23		1.4. characteristics of different types of stone & their uses	01
		2. Bricks	
22.8.23 24.8.23		2.1 Brick earth - its composition	02
26.8.23 28.8.23		2.2. Brick making - preparation of brick earth, moulding, drying	02
		Burning kiln	
28.8.23 24.8.23		2.3 classification of brick size of traditional & modular bricks	02
		Qualities of good building bricks	
		3. Cement, mortar & concrete	
26.8.23		3.1 cement - Types of cement Properties of cements, mortar.	01
		Harding of cement	

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 3rd Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
28.8.23	Th-3 Building material and	3.9 Importance and application of blended cement with fly ash and blast furnace slag	01
31.8.23	Construction Technology	3.3 mortar: Definition & types of mortar	01
2.9.23		3.4 sources & classification of sand, Bulking of sand.	01
4.9.23		3.5 use of Gravel, maximum and flyash as different building material	01
7.9.23 9.9.23		3.6 concrete-Definitions composition - water cement ratio	02
		- workability, mechanical Properties and grading of aggregates	
		mixing Placing compacting and curing of concrete.	
		4. Other construction materials	
11.9.23		4.1 Timber- classification & structure of timber	01
13.9.23		4.2 seasoning of timber - importance	01
14.9.23		4.3 characteristics of good Timber	01
16.9.23 18.9.23		4.3 clay products & refractory materials-Definition and classification	02

LESSON PLAN

Degree/Diploma/+2 Science
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Semester

3rd

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
21.9.23	th-3	4.4 properties and uses of refractory materials. tiles	01
	Building material	terracotta, porcelain glazing	
23.9.23	4 construction Technology	4.5 Iron and steel uses of cast iron, wrought iron, mild steel and for steel	01
		5. surface protective material	
25.9.23 27.9.23		5.1 composition of Paints enamel varnishes	02
28.9.23 30.9.23		5.2. Types & uses of surface protective materials like	03
4.10.23		Paints, Enamels, Varnishes Distempers, Emulsion, French and wax Polish	
		PART(B) (Construction Technology)	
		1. Introduction	
5.10.23		1.1 Buildings & classification of building based on occupancy	01
7.10.23		1.2. Different components of a building,	01
9.10.23		1.3. site investigation objectives, site reconnaissance & explanation	01
		2. foundation	

LESSON PLAN

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Semester

3rd

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
11.10.23	Th-3 Building material	2.1 concept of foundations & its purpose	01
12.10.23		2.2. Types of foundation shallow & deep	01
14.10.23	construction Technology.	2.3 shallow foundation. constructional details of spread footing	01
		For walls. thumb rules for depth & width of found	
		thickness of concrete block	
16.10.23		2.4. Deep foundation pile found - their sustainability	01
		classification of piles based on materials, function	
		method of installation	
		3. walls & masonry works	
18.10.23		3.1 Purpose of walls	01
19.10.23		3.2 classification of walls Load bearing non-bearing walls	01
		retaining walls	
28.10.23		3.3 classification of walls as per materials & constructions	01
		brick stone reinforced brick reinforced concrete hollow	
		& solid concrete blocks composed masonry walls	

LESSON PLAN

Degree/Diploma/+2 Science
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Semester 3rd

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
30.10.23	Th-3	3.4 Partition walls suitability & uses of brick & wooden	01
	Building material	Partition walls	
1.11.23	construction	3.5 Brick masonry. Defn. of diff. terms	01
2.11.23	Technology.	3.6 Bond - meaning of necessity English Bond for $1\frac{1}{2}$ brick	01
		walls, T. x & right angled corner junctions. Thickness	
		for $1\frac{1}{2}$ brick square Pillar. on English Bond	
4.11.23		3.7 Stone masonry	
		3.8 Glossary of terms strong course corbel. cornice)	01
		grouping, mouldings, through parapet, coping pilaster & buttress	
		4. Door, windows & lintels	
6.11.23		4.1 Glossary of terms used in doors & windows.	01
8.11.23		4.2. Doors - different types of doors	01
9.11.23		4.3 windows - different types of windows	01
10.11.23		4.4 Purpose of uses of arches & lintels	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

3rd

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
15-11-23	Th-3	s. floors / Roofs Stair case	
	Building material	s.1 floors. Glossary of terms types of floor finishes - cost	01
	of construction	site, concrete flooring terrace tile flooring cast in situ terrace	
	Technology	flooring, timber flooring	
16-11-23		s.2. Roofs - Glossary of terms types of roofs, concepts	01
		function of flat pitched, hip & sloped roofs	
17-11-23		s.3 stairs - Glossary of terms stair case, wind landing	02
18-11-23		stringers, head rise width of stair case hand rails	
		mud room	
20-11-23		s.4. Various types of stair case straight flight cag legged	01
		open well / open well, sugar for turn, half turn bifurcated	
		open well open well / scull for turn, half turn, bifurcated	
		stair, tread rise stair	
		6. protective, decorative finishes, damp & termite proofing	
22-11-23		6.1. plastering - purpose types of plastering types of	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 3rd Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-3	Plaster finishes- grit finishes rough cast, smooth cast sand	
	Building material	Stucco, pebble dash, acoustic Plastering & Plain plaster etc	
23.11.23	Construction Technology	6.2. Preparation of mortars used for different plasters	01
		Preparation of mortars techniques of plastering & curing	
25.11.23		6.3. Painting purpose- Types	01
29.11.23		6.4. Painting objectives method of painting new & old wall	01
		Surfaces, wood, surfaces & metal surfaces- powder coatings	
		Spray painting on metal surfaces	
2.12.23		6.5- white washing - colour washing- Distempers	01
		Internal & External walls	
4.12.23		6.6 Damp & Termite protecting materials & methods	01
		7. Green Building Energy	
		Management's Energy Audit Buildings & Project	
6.12.23		7.1 concept of green building	01
7.12.23		7.2 Introduction to energy management & energy audit	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

3rd

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th-3	of building -	
8-12-23	Building material	7.3 Aims of energy management of buildings	01
9-12-23	Construction Technology.	7.4 Types of energy Audit Response energy audit	02
10-12-23		Questionnaire	
11-12-23 13-12-23		7.5 energy surveying and audit reports.	02
14-12-23 15-12-23 16-12-23 17-12-23		classes Revision for stone Brick and cement	04
		mortar and concrete and surface protective material.	
18-12-23 20-12-23		Revision classes for the chapter of other construction materials	03
21-12-23 22-12-23 23-12-23		Revision classes for PART-B	01

**SAMANTA CHANDRASEKHAR INSTITUTE
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SEMILIGUDA-763008, KORAPUT

DEPT. OF Civil Engineering

LESSON PLAN AND PROGRESS REGISTER

(To be maintained by all members of the teaching staff)

SESSION 2023-24

NAME Abnon Itial
DESIGNATION Lecturer
DEPT. Civil Engineering

Abnon Itial
SIGNATURE

This Lesson Plan and Progress Register is to be submitted to the Director for verification and counter signature twice in every semester. The H.O.D. must verify and sign this Register before submission.

COURSES ALLOTTED

FOR DIFFERENT BRANCHES & SEMESTER (Degree/Diploma/+2 Science)

[illegible]

N.B. : Submission of Annual Lesson Plan-cum-Progress Register and performance Report for Assessment are responsibility of each faculty member.

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 5th

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	Th5. Estimation	1. Detailed Estimate of culvert and Bridges.	
14.8.23 16.8.23 18.8.23 19.8.23	2 cost evaluation-II	1.1 Detailed estimation of a R.C.C slab culvert with right angled wing walls with bar bending scheduled.	06
21.8.23 22.8.23			
24.8.23 25.8.23 26.8.23 28.8.23 29.8.23	-do-	1.2 RCC Hume pipe culvert with splayed angled wing wall.	06
		2. Estimation of irrigation structure.	
31.8.23 1.9.23 2.9.23 4.9.23 5.9.23 7.9.23	-do-	2.1 Detailed estimation of sample type of vertical fall to given specification.	07
11.9.23 12.9.23 14.9.23 15.9.23 16.9.23 18.9.23		2.2 Detailed estimation of drainage siphon to given specification.	07
	-do-	3. Detailed estimation of Roads	
22.9.23 23.9.23 25.9.23 26.9.23		Detailed Estimate of a water bound 3.1 macadam road.	04
28.9.23 30.9.23 3.10.23 5.10.23	-do-	3.2 Detailed estimate of a flexible pavement in cutting/felling.	04
6.10.23 7.10.23 9.10.23 10.10.23		3.3 Detailed estimate of septic tank and soak pit for 10 users.	04
		4. Miscellaneous Estimate.	
12.10.23 13.10.23 14.10.23 16.10.23 17.10.23 19.10.23	-do-	4.1 Tube well, pile & pile cap	06
20.10.23 24.10.23 30.10.23	-do-	4.2 Isolated and combined footing.	06
31.10.23 1.11.23 2.11.23			

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

5th

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	th. 5 Estimation and cost	5. PWD accounts work.	
	Evaluation-II	5-1 works.	
3.11.23	-do-	5-1.1 classification of work - original, major, special repairs, Quadrantal repairs.	01
4.11.23	-do-	5-1.2. concept of method of execution of work through the contractors and department, contract and agreement, work order, types of contract, piece work agreement.	01
	-do-	5.2 Accounts of works.	
	-do-	5.2.1 Explanation of various terms.	
6.11.23 & 7.11.23		Administrative approval, technical sanction, tender preparation of notice inviting tender, quotation, earnest money, E-tendering, security deposit, advance payment, final payment.	02
	-do-	Running Bill, final bill, regular and temporary establishment, cash, major & subhead of account, temporary advance.	
	-do-	Supervision charges, suspense account debit, credit, book transfers, vouchers & related accounts.	

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

5th

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
9.11.23	Ths. estimation & cost evaluation-I	52.2 Measurement Book use of maintenance, procedure of marking entries of measurement of works and supply of materials, labour employed, standard measurement books & common irregularity.	01
10.11.23	-do-	52.3. Muster Roll - Its preparation & use for making payment of pay & wages.	01
11.11.23		52.4. Acquittance Roll :- Its preparation & use of making payment of pay & wages.	01
14.11.23	-do-	52.5 Labour & Labour reports method of labour payment, use of forms & necessity of submission.	01
16.11.23	-do-	52.6. Classification of stores, receipt/issue statement on standard form, method of preparation of stock account, preparation and submission of returns, verification of stocks, shortage and excess.	01
17.11.23	-do-	5.3. Building BY LAWS and regulatory bodies, development authorities, types and their levels PERA etc.	01

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SEMILIGUDA-763008, KORAPUT

DEPT. OF Civil Engineering

LESSON PLAN AND PROGRESS REGISTER

(To be maintained by all members of the teaching staff)

SESSION 2023-24

NAME Abnor Hial
DESIGNATION LECTURER
DEPT. CIVIL ENGINEERING

Abnor Hial
SIGNATURE

This Lesson Plan and Progress Register is to be submitted to the Director for verification and counter signature twice in every semester. The H.O.D. must verify and sign this Register before submission.

COURSES ALLOTTED

FOR DIFFERENT BRANCHES & SEMESTER (Degree/Diploma/+2 Science)

Semester	Course No.	Course Title
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5th

Th2

structural design - II

N.B. : Submission of Annual Lesson Plan-cum-Progress Register and performance Report for Assessment are responsibility of each faculty member.

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester

5th

Branch

Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	TH-2 of structural Design-II		
		<u>Introduction:-</u> Common steel structure.	
14.8.23		Advantages and disadvantages of steel structure.	01
16.8.23		Types of steel & properties of steel structure.	
		Rolled steel section, special considerations in steel in	01
		steel design	
18.8.23		Loads & load combinations	01
19.8.23		Structural analysis and Design philosophy	01
21.8.23		Brief review of principles of Limit state design	
		<u>Structural steel fasteners & connections.</u>	
		Bolted connections, :- classifications of bolted connection, advantages and disadvantages of bolted connections	01
22.8.23			
23.8.23		Different terminology, spacing & edge distance of bolt holes	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 5th semester Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
25-8-23	th-2 of structural design-2	Types of bolted connection Types of action of fasteners, assumptions & principles of design	01
26-8-23 & 28-8-23		Strength of plates in a joint, Strength of bearing types of bolts (shear capacity & bearing capacity), reduction factors & shear capacity of HSFG Bolts.	02
29-8-23 & 1-9-23		Analysis and design of joints using bearing types and HSFG Bolt (Expect eccentric load & prying force efficiency of joints)	02
		<u>welded connections :-</u>	
2-9-23		Advantages & disadvantages of welded connections.	01
		Types of welded connection specifications of welded connections	
4-9-23		Design stresses in welds	01
5-9-23		Strength of welded joints	01

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 5th semester

Branch Civil engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
8-9-23	th-2 of structural Design-2	Design of Tension members. Common shapes of tension members.	01
9-9-23 11-9-23		maximum values of effective slenderness ratio	02
12-9-23 13-9-23 15-9-23 16-9-23 18-9-23 22-9-23 23-9-23		Analysis and design of tension members (considering strength only & concept of block shear failure).	07
		Design of Compression members.	
25-9-23		Common shapes of compression members	01
26-9-23 27-9-23		Buckling class of cross section slenderness ratio	02
30-9-23 3-10-23		Design compressive strength & stress of compression members	02
4-10-23 6-10-23 7-10-23 9-10-23 11-10-23		Design of steel Beams Analysis of design of compression members Axially loaded	05

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 5th Semester

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
13.10.23 14.10.23	Th-2	<u>Design of steel Beam</u> Common cross sections & their classification	02
16.10.23 17.10.23 18.10.23 20.10.23	Structural Design-2	Deflection limits, web buckling and web crippling	04
28.10.23 30.10.23 31.10.23 1.11.23		Design of Laterally supported Beam against Bending & shear	04
		<u>Design of Tubular steel structure</u>	
3.11.23 4.11.23		Round tubular sections, permissible stresses	02
6.11.23 7.11.23		Tubular compression and tension members	02
8.11.23 10.11.23		Joints in Tubular trusses.	02
11.11.23 14.11.23		<u>Design of masonry structures</u>	
15.11.23 16.11.23		Design considerations for masonry walls & columns,	02
17.11.23 18.11.23		Load bearing walls, non-load	07
20.11.23 21.11.23 22.11.23		Bearing walls, permissible stresses, slenderness ratio, effective	
24.11.23 25.11.23		length, height & thickness	

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DEPT. OF Civil Engineering

LESSON PLAN AND PROGRESS REGISTER

(To be maintained by all members of the teaching staff)

SESSION 2023-24

NAME Abnor Hial
DESIGNATION LECTURER
DEPT. CIVIL ENGINEERING

Abnor Hial
SIGNATURE

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COURSES ALLOTTED

FOR DIFFERENT BRANCHES & SEMESTER (Degree/Diploma/+2 Science)

Semister	Course No.	Course Title
5 th semester	PR-2	Estimating practice-2 (computer Aided).

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LESSON PLAN

Degree/Diploma/2nd Science
(Theory/Pract/Lab/Workshop)

Semester 5th semester

Branch Civil Engineering

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
	PR-2	Computer-Aided.	
17.8.23	Estimation practice-II	1- Detailed Estimate of culvert and bridges.	
24.8.23 31.8.23		1.1 Detailed Estimate of a R.C.C slab culvert with right angled using walls with Bar bending schedule.	
7.9.23		2 RCC Hume pipe culvert with splayed angled wingwall.	
14.9.23 21.9.23		2. Estimate of irrigation structure	
28.9.23		2.1. Detailed Estimate of simple type of vertical fall to given specification.	
5.10.23			
12.10.23 19.10.23 2.11.23		2.2 Detailed estimate of drainage siphon to given specification.	
		3. Detailed Estimate of roads.	
9.11.23 16.11.23		3.1 Detailed estimate of a W.B.M road.	
23.11.23		3.2. Detailed Estimate of a flexible pavement in cutting/filling	
30.11.23		4. Miscellaneous Estimate.	
7.12.23 11.12.23		4.1. Tube well; piles & pile cap, isolated & combined footing.	
14.12.23			

DEPARTMENT OF CIVIL ENGINEERING

INTERNAL NOTICE

SCITM, SEMILIGUDA, KORAPUT

Dt - 02/09/2023

The following staff members of Civil Dept are ensured as proctor/ mentor towards 2nd and 3rd year students of Civil Dept for the academic year 2023-24

Responsibilities of proctor is to counsel the student on regular basis, interact their parents track the student's academic and non academic progress throughout the year and take necessary steps for overall improvement of the students under their mentorship.

Name of the Proctor- Abnor Hial, Faculty, Civil Dept, (9348035947) ^{contact no.}
2nd Year, Civil Branch, 2023-2024

Sl. No.	REGD. NO.	NAME OF THE STUDENT
1)	F22030001036	Rupeli Khora
2)	F22030001037	Sameer Alendingi
3)	F22030001038	Samir Mohanandia
4)	F22030001040	Sangita Sisa
5)	F22030001041	Santi Missing
6)	F22030001042	Sarbu Pujari
7)	F22030001043	Sasmita Dami
8)	F22030001044	Sukanta Chadi
9)	F22030001045	Suman Bangari
10)	F22030001046	Suman Hantal
11)	F22030001049	Swaty Sethy
12)	F22030001050	Trilochan Janc
13)	F22030001051	Trinath Khara
14)	F22030001052	Tulasi Bhoi
15)	F22030001053	Uddhaba Muduli

[illegible]

DEPARTMENT OF CIVIL ENGINEERING

INTERNAL NOTICE

SLITM, SEMILIGUDA, KORAPUT

DT - 02/09/2023

The following staff members of Civil Dept are ensured as proctor/mentor towards 2nd and 3rd year students of Civil Dept for the academic year 2023-24

Responsibilities of proctor is to counsel the student on regular basis, interact their parents track the student's academic and non academic progress throughout the year and take necessary steps for overall improvement of the students under their mentorship.

Name of the Proctor- Abnor Hial, Faculty, Civil Dept, (9348035947) Contact no.
3rd Year, Civil Branch, 2023-2024.

Sl. No.	REGD. NO.	NAME OF THE STUDENT
1)	P21030001040	Sunil Kumar Nayak
2)	P21030001041	Sunil Santa
3)	L22030001001	Akshaya kumar Nayak
4)	L22030001003	David khilla
5)	L22030001004	Haric Muduli
6)	L22030001006	Kishore Maïra
7)	L22030001009	Ruka Guntha
8)	L22030001010	Sabitri Dami
9)	L22030001011	Sandipta Benya
10)	L22030001012	Sanjay Hantal
11)	L22030001013	Sanjay Khara
12)	L22030001014	Suresh Almang
13)	L22030001007	Prabina Kumar khillo.