

Course Structure

For

4-Years B. Tech. in Civil Engineering

Effective from 2017-2018 Academic Sessions



**Department of Civil Engineering
National Institute of Technology Sikkim
South Sikkim - 737 139**

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM
Barfung Block, Ravangla, South Sikkim-737139

Department of Civil Engineering

S. No.	Semester	Credits/Semester	Contact hours/week
1	I	22	27
2	II	24	30
3	III	24	30
4	IV	24	30
5	V	25	31
6	VI	22	28
7	VII	21	28
8	VIII	17	25
Total		179	229

First Year

Semester	Subject Code	Subject Name	L-T-P	Credit
1 st Semester	Theory Subjects			
	MA11101	Mathematics I	3-1-0	4
	CY11101	Engineering Chemistry	3-0-0	3
	CY11102	Health, Safety and Environment	2-0-0	2
	CS11101	Computer Programming and Problem Solving	2-0-0	2
	CS11102	Introduction to Computer Systems	2-0-0	2
	HS11101	English Language and Literature	2-1-0	3
	Practical and Sessional			
	CS11201	Computer Programming Laboratory	0-0-4	2
	CY11201	Engineering Chemistry Laboratory	0-0-2	1
	ME11202	Engineering Graphics	0-0-3	2
	CE11201	Civil Workshop	0-0-2	1
		Total		14-2-11

Semester	Subject Code	Subject Name	L-T-P	Credit
2 nd Semester	Theory Subjects			
	MA12101	Mathematics II	3-1-0	4
	PH12101	Engineering Physics	3-0-0	3
	ME12101	Engineering Mechanics	3-0-0	3
	CS12101	Foundation of Computing	3-0-0	3
	EE12101	Principles of Electrical Engineering	3-0-0	3
	HS12101	Human Values and Effective Communication	1-2-0	3
	Practical and Sessional			
	PH12201	Engineering Physics Laboratory	0-0-2	1
	CS12201	Computing Laboratory	0-0-2	1
	ME12201	Workshop Practice	0-0-3	2
	EE12201	Electrical Workshop	0-0-2	1
	ZZ12201	Professional Practice I	0-0-2	Audit
	ZZ12202	Behaviour and Discipline	0-0-0	Audit
		Total		16-3-11

Second Year

Semester	Subject Code	Subject Name	L-T-P	Credit
3 rd Semester	Theory Subjects			
	CE13101	Mechanics of Solids	3-1-0	4
	CE13102	Surveying I	3-0-0	3
	CE13103	Concrete Technology	2-0-0	2
	CE13104	Civil Engineering Materials	2-0-0	2
	CE13105	Fluid Mechanics	3-0-0	3
	CE13106	Mathematics III	3-1-0	4
	Practical and Sessional			
	CE13201	Strength of Materials Laboratory	0-0-2	1
	CE13202	Surveying Practice I	0-0-3	2
	CE13203	Concrete Technology Laboratory	0-0-3	2
	CE13204	Fluid Mechanics Laboratory	0-0-2	1
	ZZ13201	Professional Practice II	0-0-2	Audit
		Total	16-2-12	24

Semester	Subject Code	Subject Name	L-T-P	Credit
4 th Semester	Theory Subjects			
	CE14101	Structural Analysis I	3-1-0	4
	CE14102	Building Construction	2-0-0	2
	CE14103	Surveying II	3-0-0	3
	CE14104	Water Supply and Solid Waste Management	3-0-0	3
	CE14105	Water Resources Engineering I	3-0-0	3
	CE14106	Geotechnical Engineering I	3-0-0	3
	Practical and Sessional			
	CE14201	Building Drawing	0-0-3	2
	CE14202	Surveying Practice II	0-0-2	1
	CE14203	Water Resources Engineering Laboratory	0-0-2	1
	CE14204	Geotechnical Engineering Laboratory I	0-0-3	2
	ZZ14201	Professional Practice III	0-0-2	Audit
	ZZ14202	Behaviour and Discipline	0-0-0	Audit
	Total	17-1-12	24	

Third Year

Semester	Subject Code	Subject Name	L-T-P	Credit
5 th Semester	Theory Subjects			
	HS15101	Engineering Economics	2-0-0	2
	CE15101	Structural Analysis II	3-1-0	4
	CE15102	Design of Reinforced Concrete Structures	3-1-0	4
	CE15103	Geotechnical Engineering II	3-0-0	3
	CE15104	Sanitary and Pollution Control Engineering	3-0-0	3
	CE15105	Water Resources Engineering II	3-0-0	3
	Practical and Sessional			
	CE15201	Structural Engineering Laboratory	0-0-2	1
	CE15202	Geotechnical Engineering Laboratory II	0-0-3	2
	CE15203	Environmental Engineering Laboratory	0-0-3	2
	CE15204	Quantity Surveying Laboratory I	0-0-2	1
	ZZ15201	Professional Practice IV	0-0-2	Audit
	Total	17-2-12	25	

Semester	Subject Code	Subject Name	L-T-P	Credit
6 th Semester	Theory Subjects			
	HS16101	Principles of Management	2-0-0	2
	CE16101	Structural Analysis III	3-0-0	3
	CE16102	Design of Steel Structures	3-1-0	4
	CE16103	Highway Engineering	3-0-0	3
	CE16104	Foundation Engineering	2-0-0	2
	*****	Elective I (Open Elective)	3-0-0	3
	Practical and Sessional			
	CE16201	Highway Engineering Laboratory	0-0-3	2
	CE16202	Structural Design Laboratory I	0-0-2	1
	CE16203	Civil Engineering Software Laboratory I	0-0-2	1
	CE16204	Quantity Surveying Laboratory II	0-0-2	1
	ZZ16201	Professional Practice V	0-0-2	Audit
ZZ16202	Behaviour and Discipline	0-0-0	Audit	
	Total	16-1-11	22	

Fourth Year

Semester	Subject Code	Subject Name	L-T-P	Credit
7 th Semester	Theory Subjects			
	CE1****	Elective II (Project related subject)	3-0-0	3
	CE1****	Elective III	3-0-0	3
	CE1****	Elective IV	3-0-0	3
	CE1****	Elective V	3-0-0	3
	Practical and Sessional			
	CE17201	Civil Engineering Software Laboratory II	0-0-2	1
	CE17202	Structural Design Laboratory II	0-0-2	1
	CE17203	Computer Aided Drawing Laboratory	0-0-2	1
	CE17204	Practical Training Evaluation	0-0-2	2
	CE17205	Major Project Part I	0-0-8	4
		Total	12-0-16	21

Semester	Subject Code	Subject Name	L-T-P	Credit
8 th Semester	Theory Subjects			
	CE1****	Elective VI (Project related subject)	3-0-0	3
	CE1****	Elective VII	3-0-0	3
	CE1****	Elective VIII	3-0-0	3
	Practical and Sessional			
	CE18201	Civil Engineering Software Laboratory III	0-0-2	1
	CE18202	Computational Techniques	0-0-2	1
	CE18203	Major Project Part II	0-0-12	6
	ZZ18201	Behaviour and Discipline	0-0-0	Audit
		Total	9-0-16	17

- Any one elective subject may be offered as open elective (for specific departments).
- For all electives except Elective II and Elective VI, the course can be selected from the approved list of elective/open elective courses. Students who are doing internship outside the institute will be permitted to opt these courses in the online mode, if available. Otherwise, they may select the equivalent subjects from the subject available on the online platform with the permission from the department.
- For Elective II and Elective VI, the supervisor has to assign the course and also the course contents. The same should bear the approval of the departmental committee constituted by the head. The committee must consist of three faculty members. The examination and evaluation will be done by the supervisor. It is desirable that the concerned supervisor select the courses available on the online platform as approved by the department.
- Practical Training shall be carried out after completion of the sixth semester and during the summer vacation. The evaluation of the same will be done in the seventh semester. This includes internship carried out at industries/ R&D organizations/ reputed academic institutions. Any practical training/internship done before the sixth semester shall not be counted against the above.

List of Electives			
CE1*111	Structural Dynamics	3-0-0	3
CE1*112	Advanced Structural Analysis	3-0-0	3
CE1*113	Mechanics of Composite Materials	3-0-0	3
CE1*114	Pre-stresses Concrete Design	3-0-0	3
CE1*115	Finite Element Analysis	3-0-0	3
CE1*116	Design of Bridge Structures	3-0-0	3
CE1*117	Design of Earthquake Resistant Structures	3-0-0	3
CE1*118	Earthquake Engineering	3-0-0	3
CE1*119	Advanced Reinforced Concrete Design	3-0-0	3
CE1*120	Advanced Concrete Technology	3-0-0	3
CE1*121	Advanced Hydrology	3-0-0	3
CE1*122	Advanced Steel Design	3-0-0	3
CE1*123	Advanced Geotechnical Engineering	3-0-0	3
CE1*124	Ground Improvement Techniques	3-0-0	3
CE1*125	Soil Dynamics	3-0-0	3
CE1*126	Design of Machine Foundations	3-0-0	3
CE1*127	Environmental Geo-techniques	3-0-0	3
CE1*128	Numerical Methods in Civil Engineering	3-0-0	3
CE1*129	Reinforced Earth and Geotextiles	3-0-0	3
CE1*130	Traffic Engineering	3-0-0	3
CE1*131	Traffic Flow Modeling	3-0-0	3
CE1*132	Pavement Design	3-0-0	3
CE1*133	Pavement Management	3-0-0	3
CE1*134	Geo-informatics in Transportation Engineering	3-0-0	3
CE1*135	Groundwater Hydrology	3-0-0	3
CE1*136	Remote Sensing and GIS Applications	3-0-0	3
CE1*137	Water Resources Planning and Management	3-0-0	3
CE1*138	Hydraulic Machines	3-0-0	3
CE1*139	Hydropower Engineering	3-0-0	3
CE1*140	Earth and Rock Fill Dam Engineering	3-0-0	3
CE1*141	Solid and Hazardous Waste Management	3-0-0	3
CE1*142	Environmental Risk Assessment and Management	3-0-0	3
CE1*143	Advanced Environmental Engineering	3-0-0	3
CE1*144	Industrial Waste Management	3-0-0	3
CE1*145	Environmental Pollution Control Engineering	3-0-0	3
CE1*146	Advanced Surveying	3-0-0	3
CE1*147	Optimization Methods in Civil Engineering	3-0-0	3
CE1*148	Advanced Construction Technologies and Machineries	3-0-0	3
CE1*149	Statistics, Probability and Reliability Methods in Civil Engineering	3-0-0	3
CE1*150	Coastal Engineering	3-0-0	3