

Department of Civil Engineering

Welcome to the Department of Civil Engineering, a discipline often regarded as the oldest and most diverse branch of Engineering with practice commencing between 4000 and 2000 B.C in ancient Egypt and Mesopotamia (ancient Iraq). Ever since, Civil Engineering is associated with design, construction and maintenance of physically and naturally built environment. With Sir Visvesvaraya Mokshagundam setting up highest bench marks for the Civil Engineering community in this country, the onus of development rests on present and future civil engineering professionals. At Shiv Nadar University the Department of Civil Engineering, thriving under the aegis of the School of Engineering, aims to carry forward this legacy and provide the dynamic workforce to lead country's development.

Through its wide spectrum of core and elective courses at each level, the department aims to develop both scientific and professional expertise. The undergraduate curriculum is designed to mould students into excellent professional engineers by exposing them to different aspects of civil engineering (Environmental Engineering, Geoinformatics, Geotechnical Engineering, Structural Engineering, Water Resource Engineering and Transportation Engineering).

The department has highly skilled faculties with diverse background to nurture the talent of students and for defining new horizons. Apart from this, the state-of-art laboratory facilities and adequate computational power will ensure the all-round development of our students. Keeping in mind the importance of industrial interaction and understanding of practical problems, various workshops and industrial trainings are being organized at regular intervals during the course. The students with their vibrant academic background and first-hand industrial experience will also be mentored to tackle problems faced by industry.

Current developments in technology are rapidly and continuously driving local, national and global changes, giving us a progressively more integrated, complex and unpredictable world to live in. Every undergraduate student of the department shall have the option of choosing to do a Minor. This means that the student earns certain credits in the subject area of his interest. The Minor subject area is offered by a department other than the Civil Engineering Department. For example, a student can choose to do a minor in Computer Science or Management.

This well-rounded educational experience helps civil engineers in planning, designing, constructing and maintaining facilities which are essential elements of modern-day life such as highways, dams, etc. Such an opportunity for exploration provides students the chance to pursue a range of intellectual interests resulting in greater professional success and deeper personal satisfaction.

Course Outline and Credit Distribution

Total number of Credits : 177

Duration of Programme : 4 years

Curriculum

S. No.	Category	Credits
1.	Core Common Curriculum (CCC)	24
2.	University Wide Elective (UWE)	18
3.	Basic Sciences (BS)	28
4.	Engineering Sciences (ES)	20
5.	Major Core	55
6.	Major Elective	12
7.	Project	20
Total Credits		177

For details of CCC, UWE refer UG Handbook

Basic Sciences

28 Credits

S. No.	Course	L:T:P	Credits
1	Physics-1	3-1-0	4
2	Applied Chemistry	3-1-1	5
3	Maths-1	3-1-0	4
4	Bio Science	3-0-0	3
5	Maths-2	3-1-0	4
6	Physics-2	3-1-1	5
7	Maths-3	3-0-0	3
Total Credits			28

Engineering Sciences

20 Credits

S. No.	Course	L:T:P	Credits
1	Problem Solving through Programming	3-0-1	4
2	Introduction to Electrical Engineering	3-1-1	5
3	Engineering Mechanics	3-1-0	4
4	Manufacturing Processes	1-0-1	2
5	Engineering Graphics	1-0-1	2
6	Material Science and Engineering	3-0-0	3
Total Credits			20

Project

20 Credits

S. No.		L:T:P	Credits
1	Project	0-0-20	20

First Semester

Sl. No.	Course Title	L:T:P	Credits
1	CCC 1		3
2	Maths-1	3:1:0	4
3	Physics-1	3:1:0	4
4	Applied Chemistry	3:1:1	5
5	Engineering Mechanics/	3:1:0/	4/
	Engineering Graphics	1:0:1	2
6	Problem Solving through Programming/	3:0:1/	4/
	Introduction to Electrical Engineering	3:1:1	5
7	Manufacturing Processes	1:0:1	2
Semester Credits			24/ 25

Second Semester

Sl. No.	Course Title	L:T: P	Credits
1	CCC 2		3
2	Maths-2	3:1:0	4
3	Physics-2	3:1:1	5
4	Bioscience	3:0:0	3
5	Engineering Mechanics/	3:1:0/	4/
	Engineering Graphics	1:0:1	2
6	Problem Solving through Programming/	3:0:1/	4/
	Introduction to Electrical Engineering	3:1:1	5
7	Manufacturing Processes	1:0:1	2
Semester Credits			24/23

Students will do either the combination of Engineering Mechanics & Problem Solving through Programming or Engineering Graphics, Introduction to Electrical Engineering & Manufacturing Processes.

Third Semester

Sl. No.	Code	Course Title	L:T: P	Credits
1		CCC 3		3
2		Maths-3	3:0:0	3
3		Material Science and Engineering	3:0:0	3
4	CED201	Strength of Materials	3:0:1	4
5	CED202	Fluid Mechanics	3:0:1	4
6	CED206	Elements of Surveying	3:0:1	4
7		UWE- I		3
Semester Credits				24

Fourth Semester

Sl. No.	Code	Course Title	L:T: P	Credits
1		CCC 4		3
2	CED203	Engineering Hydrology	2:0:0	2
3	CED204	Structural Analysis-1	3:0:0	3
4	CED205	Concrete Technology	3:0:1	4
5	CED207	Advanced Fluid Mechanics	2:0:1	3
6	CED208	Major Elective -I		3
7	CED209	Seminar –I	0:0:0	NS/S
8		UWE- II		3
Semester Credits				21

Fifth Semester

Sl. No.	Code	Course Title	L:T: P	Credits
1		CCC 5		3
2	CED301	Structural Analysis –II	3:0:0	3
3	CED302	Geotechnical Engineering	3:0:1	4
4	CED303	Water Resource Engineering	3:0:0	3
5	CED304	Transportation Engineering	3:0:1	4
6	CED305	Design of RCC Structures	3:0:0	3
7		UWE- III		3
Semester Credits				23

Sixth Semester

Sl. No.	Code	Course Title	L:T: P	Credits
1		CCC 6		3
2	CED306	Foundation Engineering and Design	3:0:0	3
3	CED307	Estimating, Costing and project management	3:0:1	4
4	CED308	Environmental Engineering	3:0:1	4
5		Major Elective –II		3
6		UWE-IV		3
7		UWE–V		3
8	CED313	Seminar –II	0:0:0	NS/S
Semester Credits				23

Seventh Semester

Sl. No.	Code	Course Title	L:T: P	Credits
1		CCC 7		3
2		CCC 8		3
3	CED401	Design of Steel Structures	3:0:0	3
4		Major Elective –III		3
5		Major Elective-IV		3
6		UWE-VI		3
7	CED 414	Industrial Training/ Summer Internship	0:0:0	NS/S
Semester Credits				18

Eighth Semester

Sl. No.		Course Title	L:T: P	Credits
1	CED 415	Project	0:0:20	20
Semester Credits				20

Tentative List of electives:

- Building Planning and Drawing
- Materials in construction
- Advanced construction techniques
- Design of structural masonry
- Advanced Surveying
- Environmental Engineering -II
- Earthquake engineering and common practices
- Introduction to climate modeling
- Stability and condition assessment of structures
- Project Planning and Management
- Ground Water Improvement Technique
- Element of Hydropower
- Introduction to FEM
- Town/Urban planning
- Analysis of tall structures
- Impact assessment of project (Case study)
- Infrastructure development and challenges
- Soil improvement techniques
- Geotechnical earthquake engineering

* Course outline can be revised whenever it is required.

Minor offered by Civil Engineering Department

Minor in Civil Engineering

Courses:

Sl No.	Courses Title	Semester	L:T:P	Credits
1	Engineering Mechanics (For non-engineering students)	I	3:1:0	4
2	Strength of material	III	3:0:1	4
3	Elements of Surveying	IV/III	3:0:1	4
4	Concrete Technology	IV	3:0:1	4
5	Geotechnical Engineering	V	3:0:1	4
6	Students can opt any two subject with their choice out of these five subjects			
	(a) Building Planning & Drawing	IV	2:0:1	3
	(b) Hydraulic Engineering/ Advanced Fluid Mechanics	IV	2:0:1	3
	(c) Transportation Engineering	V	3:0:1	4
	(d) Design of RCC Structures	V	3:0:0	3
	(e) Environmental Engineering	VI	3:0:1	4
		Total Credits		22-24 (For Engineering Students)/ 26-28 (For non-engineering students)

Total No. of Seat : 10

Eligibility : Minimum 6.5 CGPA (upto last semester)

Subsequent admission criteria : Based on personnel interaction with departmental committee

Pre Requisite : Physics and Mathematics at +2 level

Specialized track offered by Civil Engineering Department

The following possible specialization tracks from Civil engineering department:

1. Structural Mechanics
2. Advance Transportation System
3. Water Resource Development
4. Construction Planning & Management
5. Green Infrastructure