



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name : Fluid Mechanics, Course Code : KCE 303

After completion of this course, the student will be able to

**CO-1:** Understand the broad principles of fluid statics, kinematics and dynamics

**CO-2:** Understand definitions of basic terms used in fluid mechanics

**CO-3:** Understand classifications of fluid flow.

**CO-4:** Apply the continuity, momentum and energy principles

**CO-5:** Apply dimensional analysis

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2 (PO-14)
CO-1	3	2	1	1	-	-	-	-	1	-	-	1	-	-
CO-2	3	2	-	-	-	-	-	-	1	-	-	1	-	-
CO-3	3	2	-	-	-	-	-	-	1	-	-	1	-	-
CO-4	3	3	2	2	-	-	-	-	1	-	-	1	-	-
CO-5	3	2	2	2	-	-	-	-	1	1	-	1	-	-



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## DEPARTMENT OF CIVIL ENGINEERING



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Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name : Building Planning & Drawing Lab, Course Code : KCE 351

After completion of this course, the student will be able to

**CO-1:** Apply the principles of planning and bye-laws (National building code) used for building planning

**CO-2:** Draft the plan, elevation and sectional views of the buildings using AutoCAD

**CO-PO Mapping**

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2 (PO-14)
CO-1	3	-	1	-	-	2	1	3	1	1	-	1	-	-
CO-2	3	-	1	-	3	1	-	-	2	2	-	3	-	-



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### DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name : Surveying & Geomatics Lab, Course Code : KCE 352

After completion of this course, the student will be able to

**CO-1:** Demonstrate and handle various conventional surveying instruments such as chain/tape, compass, theodolite, auto-level in the field of civil engineering applications such as highway profiling, setting out curves etc.

**CO-2:** Measure distances, horizontal & vertical angles and coordinates using electronic total station.

**CO-3:** Apply the principles of photogrammetric surveying and take observations using mirror stereoscope and parallax bar.

**CO-4:** Measure coordinates using GPS and understand digitization using GIS and visual interpretation of standard FCC.

#### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2 (PO-14)
CO-1	3	3	3	2	2	1	-	1	3	2	-	-	-	-
CO-2	3	3	2	2	3	1	-	-	3	2	-	-	-	-
CO-3	3	3	3	1	2	1	-	-	3	2	-	-	-	-
CO-4	3	3	2	1	3	1	1	1	1	2	-	-	-	-



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## DEPARTMENT OF CIVIL ENGINEERING



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Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name : Engineering Mechanics, Course Code : KCE 301

After completion of this course, the student will be able to

**CO-1:** Use scalar and vector analytical techniques for analyzing forces in statically determinate structures.

**CO-2:** Apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems.

**CO-3:** Apply basic knowledge of mathematics and physics to solve real-world problems.

**CO-4:** Understand basic dynamics concepts – force, momentum, work and energy .

**CO-5:** Understand and be able to apply Newton's laws of motion.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2 (PO-14)
CO-1	3	3	2	2	-	1	-	-	1	-	-	2	2	-
CO-2	3	3	2	2	-	-	-	-	1	-	-	2	2	-
CO-3	3	3	2	3	-	2	-	-	1	-	-	2	2	-
CO-4	3	3	2	3	-	1	-	-	1	-	-	2	2	-
CO-5	3	3	2	2	-	-	-	-	1	-	-	3	2	-



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Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name : Fluid Mechanics Lab, Course Code : KCE 353

After completion of this course, the student will be able to

**CO-1:** Evaluate Bernaulli's Theorem & Momentum equation in pipe flow.

**CO-2:** Apply continuity equation and flow visualisation in pipe flow.

**CO-3:** Verify the concept of buoyancy and hence metacentre point.

**CO-4:** Illustrate the concept of wind tunnel.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2	3	1	-	-	-	-	1	-	-	1	-	-
CO-2	3	2	3	1	-	-	-	-	1	-	-	1	-	-
CO-3	3	2	3	1	-	-	-	-	1	-	-	1	-	-
CO-4	3	2	3	1	2	-	-	-	1	-	-	1	-	-



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## DEPARTMENT OF CIVIL ENGINEERING



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Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name: Mathematics III, Course Code: KAS 303

After completion of this course, the student will be able to

**CO-1:** Learn the concept of Laplace transform and apply in solving real life problems.

**CO-2:** Evaluate the fourier integral of a function. They study the properties & applications of Fourier transformation, also explore the Z transform of a given function to find the solution of difference equation.

**CO-3:** Learn the concept of Formal Logic, Group and Rings to evaluate real life problems.

**CO-4:** Apply the concept of Set, Relation, function and Counting Techniques

**CO-5:** Apply the concept of Lattices and Boolean Algebra to create Logic Gates and Circuits, Truth Table, Boolean Functions.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2	2	2	2	1	2	1	1	-	-	1	1	1
CO-2	3	3	3	2	1	1	2	1	1	-	-	-	1	1
CO-3	3	3	3	1	2	2	1	1	1	1	1	1	3	1
CO-4	3	2	3	1	1	2	2	2	1	1	1	1	3	1
CO-5	3	2	1	1	1	2	2	1	1	1	1	1	3	1



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Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name : Mini Project, Course Code : KCE 354

After completion of this course, the student will be able to

**CO-1:** Understand a system, component or process to meet desired progress of project.

**CO-2:** Prepare Project Report for a project in Civil Engineering domain.

**CO-PO Mapping**

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	3	2	2	2	2	3	2	3	2	3	3
CO-2	3	3	3	3	2	2	2	2	3	3	3	2	3	1



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## DEPARTMENT OF CIVIL ENGINEERING



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Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name: Surveying & Geomatics, Course Code: KCE 302

After completion of this course, the student will be able to

**CO-1:** Describe the function of surveying and work with survey instruments, take observations, and prepare plan, profile, and cross-section and perform calculations.

**CO-2:** Calculate, design and layout horizontal and vertical curves.

**CO-3:** Operate a total station and GPS to measure distance, angles, and to calculate differences in elevation. Reduce data for application in a geographic information system.

**CO-4:** Relate and apply principles of photogrammetry for surveying.

**CO-5:** Apply principles of Remote Sensing and Digital Image Processing for Civil Engineering problems.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	2	3	2	1	-	-	3	1	-	2	-	-
CO-2	3	3	2	3	2	2	-	-	2	1	-	2	-	-
CO-3	3	3	3	3	3	2	2	-	2	1	-	2	-	-
CO-4	3	3	3	3	2	1	1	-	2	1	-	2	-	-
CO-5	3	3	3	3	3	1	2	-	2	1	-	2	-	-





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Academic Session : 2020 - 2021 Semester : 3rd

Course Outcomes

Course Name: Technical Communication, Course Code: KAS 301

After completion of this course, the student will be able to

**CO-1:** Enable students understand the basics, process, level and flow of communication without barrier and enhance interpersonal skills of students.

**CO-2:** Make students learn and use principles of business communication and practice those in proper formats using appropriate structure in order to develop professional attitude among students.

**CO-3:** Make students explore and imbibe various nuances and ethics of delivery in presentation along with audio-visual aids and also learn to effectively work as an individual as well as in team.

**CO-4:** Enable students, appear in group discussion, interviews and various other activities at work place effectively with grammatical and socio-linguistic competence and appropriate verbal and non-verbal cues.

**CO-5:** Make student understand and imbibe voice-dynamics appropriately.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	-	-	-	-	-	1	-	1	3	3	2	2	-	-
CO-2	-	-	-	-	-	-	-	-	2	3	3	3	-	-
CO-3	-	-	-	-	-	1	-	-	2	3	2	3	-	-
CO-4	-	-	-	-	-	-	-	-	2	3	2	3	-	-
CO-5	-	-	-	-	-	-	-	-	3	3	2	3	-	-



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Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Energy Science and Engineering, Course Code : KOE 043

After completion of this course, the student will be able to

**CO-1:** Apply concepts of energy conversion in power cycles.

**CO-2:** Understand and apply the concepts of nuclear energy.

**CO-3:** Understand and apply the concepts of solar energy.

**CO-4:** Differentiate between conventional and non-conventional energy and elaborate about various energy sources.

**CO-5:** Apply concepts of energy audit for optimization of energy consumption.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
<b>CO-1</b>	3	2	1	-	-	1	1	-	1	1	-	1	-	-
<b>CO-2</b>	3	2	2	1	2	1	1	1	1	1	-	1	-	-
<b>CO-3</b>	3	2	2	1	2	1	1	1	1	1	-	1	-	-
<b>CO-4</b>	3	2	2	1	2	3	3	-	1	1	-	1	-	-
<b>CO-5</b>	3	1	-	-	2	3	3	2	1	1	-	1	-	-



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Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Hydraulics & Hydraulic Machine Lab, Course Code : KCE 453

After completion of this course, the student will be able to

**CO-1:** Investigate flow characteristics and various parameters for open channel

**CO-2:** Assess the performance of pumps and turbines.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	3	3	2	-	2	2	-	1	-	-	-	-	-
CO-2	3	1	1	1	-	1	1	-	1	-	-	-	-	-



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(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Human Values and Professional Ethics, Course Code : KVE 401

After completion of this course, the student will be able to

**CO-1:** Understand the need, basic guidelines, content and process for Value Education with reference to Technical Education.

**CO-2:** Understand Harmony in the Human Being - Harmony in Myself.

**CO-3:** Understand Harmony in the Family and Society- Harmony in Human-Human Relationship.

**CO-4:** Understand Harmony in the Nature and Existence - Whole existence as Co-existence.

**CO-5:** Apply Holistic Understanding of Harmony on Professional Ethics.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	-	-	-	-	-	3	3	3	3	1	-	2	-	-
CO-2	-	-	-	-	-	3	3	3	3	1	-	2	-	-
CO-3	-	-	-	-	-	3	3	3	3	1	-	2	-	-
CO-4	-	-	-	-	-	3	3	3	3	1	-	2	-	-
CO-5	-	-	-	-	-	3	3	3	3	1	-	2	-	-



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Program : B.Tech (Civil Engineering)  
Academic Session : 2020-21 Semester : 4th  
Course Outcomes

Course Name : Hydraulic Engineering & Machines, Course Code : KCE 403

After completion of this course, the student will be able to

CO-1: Apply their knowledge of fluid mechanics in addressing problems in open channels.

CO-2: Solve problems in uniform, gradually and rapidly varied flows in steady state conditions.

CO-3: Apply knowledge in hydraulic machineries like pumps and turbines.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	2	2	2	-	-	-	-	1	-	-	2	-	-
CO-2	3	3	3	3	-	-	-	-	1	-	-	2	-	-
CO-3	3	3	2	2	1	-	-	-	1	-	1	2	-	-



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Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Introduction to Solid Mechanics, Course Code : KCE 402

After completion of this course, the student will be able to

**CO-1:** Describe the concepts and principles of stresses and strains.

**CO-2:** Analyse solid mechanics problems using classical methods and energy methods.

**CO-3:** Analyse structural members subjected to combined stresses.

**CO-4:** Calculate the deflections at any point on a beam subjected to a combination of loads

**CO-5:** Understand the behaviour of columns, springs and cylinders against loads.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	2	3	2	1	-	1	-	-	-	-	1	2	2	2
CO-2	3	3	2	2	-	-	-	-	-	-	1	2	2	2
CO-3	3	3	3	2	-	-	-	-	-	-	1	2	2	2
CO-4	2	3	2	3	-	1	-	-	-	-	1	1	2	2
CO-5	2	2	2	3	1	1	-	-	-	-	1	2	2	2



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(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Materials, Testing & Construction Practices, Course Code : KCE 401

After completion of this course, the student will be able to

**CO-1:** Identify various building materials and to understand their basic properties.

**CO-2:** Understand the use of non-conventional civil engineering materials.

**CO-3:** Study suitable type of flooring and roofing in the construction process.

**CO-4:** Characterize the concept of plastering, pointing and various other building services.

**CO-5:** Exemplify the various fire protection, sound and thermal insulation techniques, maintenance and repair of buildings.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	-	-	2	-	-	-	-	1	-	-	1	-	-
CO-2	3	-	-	2	-	2	2	-	1	-	-	1	-	-
CO-3	3	-	-	2	-	2	2	2	1	-	-	2	-	-
CO-4	3	-	-	2	2	2	2	2	1	-	-	2	-	-
CO-5	3	-	-	2	3	2	2	2	1	-	-	2	-	2



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## DEPARTMENT OF CIVIL ENGINEERING



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Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Material Testing Lab, Course Code : KCE 451

After completion of this course, the student will be able to

**CO-1:** Determine the quality of bricks, cement, fine aggregate and coarse aggregate and its suitability for construction purpose.

**CO-2:** Design the mix, make the specimens and test the same for the strength for comparison with design strength.

**CO-3:** Develop ability to function as a member of a team to complete the assigned task

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	1	-	1	1	1	1	-	1	1	1	2	-	2
CO-2	3	2	2	2	2	1	1	-	1	1	1	2	-	2
CO-3	-	-	-	-	-	-	-	-	3	1	-	1	-	2





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Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 4th

Course Outcomes

Course Name : Material Testing Lab, Course Code : KCE 451

After completion of this course, the student will be able to

**CO-1:** Verify the deflection in different structural members by using apparatus

**CO-2:** Determine the engineering properties of solid Materials.

**CO-3:** Explain the behaviour of beams and columns under different end conditions.

CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	2	2	2	-	1	-	-	1	1	-	2	2	-
CO-2	3	2	2	2	2	1	-	-	1	1	-	2	2	-
CO-3	3	2	2	2	-	1	-	-	1	1	-	2	2	-



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## DEPARTMENT OF CIVIL ENGINEERING

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**Program :B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 5th**  
**Course Outcomes**  
**Course Name : CAD Lab, Course Code : KCE 551**

**After completion of this course, the student will be able to**

**CO-1:** Apply GIS software for georeferencing, digitizing and interpreting satellite images.

**CO-2:** Apply software tools for numerical solution to geotechnical engineering problems.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	1	3	3	-	-	-	1	1	-	2	-	-
CO-2	3	3	3	3	3	-	-	-	1	1	-	2	3	-



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(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program :B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 5th

Course Outcomes

Course Name : Concrete Technology, Course Code : KCE 051

After completion of this course, the student will be able to

CO-1:Understand the properties of constituent material of concrete.

CO-2:Apply admixtures to enhance the properties of concrete.

CO-3:Evaluate the strength and durability parameters of concrete.

CO-4:Design the concrete mix for various strengths using difference methods.

CO-5:Use advanced concrete types in construction industry.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	-	-	2	-	-	-	-	1	-	-	1	-	3
CO-2	3	-	1	2	2	2	2	1	1	-	-	2	-	3
CO-3	3	3	3	3	2	2	2	2	1	2	-	1	3	3
CO-4	3	3	2	2	3	-	-	-	1	-	-	1	2	3
CO-5	3	1	-	-	1	2	2	1	1	-	2	2	-	3





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Program :B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 5th

Course Outcomes

Course Name :Structural Analysis, Course Code : KCE 502

**After completion of this course, the student will be able to**

CO-1 Explain type of structures and method for their analysis.

CO-2 Analyze different types of trusses for member forces.

CO-3 Compute slope and deflection in determinate structures using different methods.

CO-4 Apply the concept of influence lines and moving loads to compute bending moment and shear force at different sections.

CO-5 Analyze determinate arches for different loading conditions.

#### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	-	1	-	-	-	-	1	-	-	2	3	-
CO-2	3	3	2	1	-	-	-	-	1	-	-	2	2	-
CO-3	3	3	3	2	-	-	-	-	1	-	-	2	2	-
CO-4	3	3	2	2	-	-	-	-	1	-	-	2	3	-
CO-5	3	3	1	2	-	-	-	-	1	-	-	2	1	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program :B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 5th

Course Outcomes

Course Name : Geotechnical Engineering Lab, Course Code : KCE 552

After completion of this course, the student will be able to

**CO-1:** Determine index properties of soil sample.

**CO-2:** Classify the soils on the basis of Indian standard.

**CO-3:** Determine permeability and compaction characteristics of soil.

**CO-4:** Assess shear strength parameters of soil samples.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
<b>CO-1</b>	3	1	1	2	-	-	-	-	1	1	-	2	-	-
<b>CO-2</b>	3	1	1	2	-	-	-	-	1	1	-	2	-	-
<b>CO-3</b>	3	1	3	2	-	-	-	-	1	2	-	2	-	-
<b>CO-4</b>	3	1	3	3	-	-	-	-	1	2	-	2	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program: B.Tech (Civil Engineering)

Academic Session: 2020 - 2021 Semester: 5th

Course Outcomes

Course Name: Geotechnical Engineering, Course Code: KCE 501

After completion of this course, the student will be able to

CO-1: Classify the soil and determine its Index properties.

CO-2: Evaluate permeability and seepage properties of soil.

CO-3: Interpret the compaction and consolidation characteristics & effective stress concept of soil.

CO-4: Determine the vertical and shear stress under different loading conditions and explain the phenomenon of soil liquefaction.

CO-5: Interpret the earth pressure and related slope failures.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2	1	1	-	1	1	-	2	1	-	2	-	-
CO-2	3	3	2	2	-	1	1	-	-	1	-	1	1	-
CO-3	3	3	2	2	-	1	1	-	-	1	-	1	1	1
CO-4	3	3	2	2	-	1	1	-	-	1	-	1	2	-
CO-5	3	3	3	3	-	1	1	-	-	1	-	1	3	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program :B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 5th

Course Outcomes

Course Name :Quantity Estimation and Management, Course Code : KCE 503

**After completion of this course, the student will be able to**

CO 1: Understand the importance of units of measurement and preliminary estimate for administrative approval of projects.

CO 2: Understand the contracts and tender documents in construction projects.

CO 3: Analyse and assess the quantity of materials required for civil engineering works as per specifications.

CO 4: Evaluate and estimate the cost of expenditure and prepare a detailed rate analysis report.

CO 5: Analyse and choose cost effective approach for civil engineering projects.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	2	1	-	-	1	1	1	1	2	-	2
CO-2	-	1	-	1	-	-	-	1	1	1	1	2	-	2
CO-3	2	2	3	3	1	-	-	1	1	1	1	2	-	2
CO-4	3	3	2	3	1	-	-	-	1	1	2	1	-	2
CO-5	3	3	2	2	2	-	-	-	1	1	3	1	-	2





## KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

### DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program: B. Tech (Civil Engineering)

Academic Session: 2020-21 Semester: 6th

Course Outcomes

Course Name: Foundation Design, Course Code: KCE064

After completion of this course, the student will be able to

CO-1: Apply the process of soil exploration using various methods.

CO-2: Analyze bearing capacity and settlement of soil for shallow foundation.

CO-3: Design the various types of shallow and deep foundation.

CO-4: Understand the characteristics of well foundations and retaining wall.

CO-5: Understand the concept of soil reinforcement.

#### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2	-	2	1	1	-	-	1	-	-	1	-	-
CO-2	3	3	2	-	3	-	-	-	1	-	-	-	2	-
CO-3	3	3	3	-	-	-	-	-	1	2	-	-	2	-
CO-4	3	2	-	-	-	-	-	-	1	-	-	-	-	-
CO-5	3	2	-	-	-	-	2	-	1	-	-	2	-	-



## KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

### DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program: B.Tech (Civil Engineering)

Academic Session: 2020-21 Semester: 6th

Course Outcomes

Course Name: Environmental Engineering , Course Code : KCE603

After completion of this course, the student will be able to

**CO-1:** Assess water demand and optimal size of water mains.

**CO-2:** Layout the distribution system & assess the capacity of reservoir.

**CO-3:** Investigate physical, chemical & biological parameter of water.

**CO-4:** Design treatment units for water and wastewater.

**CO-5:** Apply emerging technologies for treatment of wastewater.

#### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	3	2	3	3	1	2	1	-	1	-	-
CO-2	3	3	3	3	2	2	3	1	2	1	-	1	-	-
CO-3	3	3	1	1	1	3	3	3	2	1	-	1	-	-
CO-4	3	3	3	3	3	3	3	2	3	1	-	1	-	-
CO-5	3	3	3	3	3	3	3	3	2	1	-	3	-	-



## KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

### DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program: B.Tech (Civil Engineering)

Academic Session: 2020-21 Semester: 6th

Course Outcomes

Course Name: Environmental Engineering Lab, Course Code : KCE 651

After completion of this course, the student will be able to

**CO-1:** Measure and compare the physical, chemical and biological properties of water & waste water.

**CO-2:** Measure the level of air pollution (Particulate Matter) and noise pollution.

**CO-PO Mapping**

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
<b>CO-1</b>	3	2	2	1	3	3	3	2	1	1	-	2	-	-
<b>CO-2</b>	3	3	2	1	1	3	3	2	1	1	-	2	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program :B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 6th

Course Outcomes

Course Name : Advance Structural Analysis, Course Code : KCE 061

After completion of this course, the student will be able to

CO-1: Analyze indeterminate structure to calculate unknown forces, slope and deflections by different methods.

CO-2 Apply principle of influence lines to analyze indeterminate beams and arches.

CO-3 Analyze and design cable structure with their influence line diagram.

CO-4 Apply basics of force and stiffness methods of matrix analysis for beams, frames and trusses.

CO-5 Apply the basic of plastic analysis to analyze the structure by using different mechanism.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	-	1	-	-	-	-	1	-	-	2	3	-
CO-2	3	3	2	1	-	-	-	-	1	-	-	2	2	-
CO-3	3	3	3	2	-	-	-	-	1	-	-	2	2	-
CO-4	3	3	2	2	-	-	-	-	1	-	-	2	3	-
CO-5	3	3	1	2	-	-	-	-	1	-	-	2	1	-
KCE061	3	3	2	1.6					1			2	2.2	



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## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 6th

Course Outcomes

Course Name : Transportation Engineering , Course Code : KCE 602

After completion of this course, the student will be able to

CO-1 Understand the history of road development, their alignment & Survey.

CO-2 Design the various geometric parameters of road.

CO-3 Study the traffic characteristics & design of road intersections & signals.

CO-4 Examine the properties of highway materials & their implementation in design of pavements.

CO-5 Learn methods to construct various types of roads.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	2	2	1	-	-	1	1	-	-	1	-	1	-	-
CO-2	3	2	1	1	-	1	2	-	-	2	-	1	-	-
CO-3	3	2	1	1	-	1	2	-	-	2	-	1	-	-
CO-4	3	2	1	1	-	1	2	-	-	2	-	1	-	-
CO-5	3	2	-	-	-	2	2	-	-	1	-	1	-	-



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## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 6th**  
**Course Outcomes**

**Course Name : Design of Concrete Structures , Course Code : KCE 601**

**After completion of this course, the student will be able to**

- CO-1:** Design RCC beams for flexure by IS methods.
- CO-2:** Design RCC beams for shear by IS methods.
- CO-3:** Design RCC slabs and staircase by IS methods.
- CO-4:** Design the RCC compression members by IS methods.
- CO-5:** Design various types of footings and cantilever retaining wall.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
<b>CO-1</b>	3	3	3	2	2	1	-	2	1	1	-	2	2	-
<b>CO-2</b>	3	3	3	2	2	1	-	2	1	1	-	2	2	-
<b>CO-3</b>	3	3	3	2	2	1	-	2	1	1	-	2	2	-
<b>CO-4</b>	3	3	3	2	2	1	-	2	1	1	-	3	2	-
<b>CO-5</b>	3	3	3	2	2	1	-	2	1	1	-	2	2	-



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## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 6th**  
**Course Outcomes**

**Course Name : Constitutions of India, Law & Engineering, Course Code : KNC 601**

**After completion of this course, the student will be able to**

**CO-1:** To acquaint the students with legacies of constitutional development in India and help those to understand the most diversified legal document of India and philosophy behind it

**CO-2:** To make students aware of the theoretical and functional aspects of the Indian

**CO-3:** To channelize students' thinking towards basic understanding of the legal concepts

**CO-4:** To acquaint students with latest intellectual property rights and innovation.

**CO-5:** Design various types of footings and cantilever retaining wall.

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO – 2
CO-1	–	–	–	–	–	2	2	2	1	–	–	2	–	–
CO-2	–	–	–	–	–	2	2	3	1	–	–	2	–	–
CO-3	–	–	–	–	–	2	2	2	1	–	–	2	–	–
CO-4	–	–	–	–	–	2	2	2	1	–	–	2	–	–
CO-5	–	–	–	–	–	2	2	2	1	–	–	2	–	–



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020-21 Semester : 6th**  
**Course Outcomes**  
**Course Name : Structure Detailing Lab, Course Code : KCE 653**

**After completion of this course, the student will be able to**

**CO-1:** Apply latest software tools for structural drafting and detailing of building components.

**CO-2:** Create bar bending schedule for structural components of a building.

**CO-3:** Understand full set of structural drawing of a building.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	1	-	-	3	-	-	1	1	2	-	2	2	-
CO-2	3	1	-	-	3	-	-	1	1	2	-	1	2	-
CO-3	3	-	-	-	-	-	-	-	2	1	-	1	-	-





# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 6th

Course Outcomes

Course Name : GIS & Remote sensing, Course Code : KOE 066

After completion of this course, the student will be able to

**CO1:** Understand about the principles of Remote Sensing and its advantages and limitations.

**CO2:** Retrieve the information content of remotely sensed data.

**CO3:** Apply problem specific remote sensing data for engineering applications.

**CO4:** Analyze spatial and attribute data for solving spatial problems.

**CO5:** Create GIS and cartographic outputs for presentation

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO – 2
CO-1	2	2	1	3	3	2	2	-	-	1	-	1	–	–
CO-2	2	2	1	3	3	2	2	-	-	1	-	1	–	–
CO-3	2	2	2	3	3	2	2	-	-	1	-	1	–	–
CO-4	2	2	3	3	3	2	2	-	-	1	-	1	–	–
CO-5	2	2	2	3	3	2	2	-	-	1	-	1	–	–



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## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program :B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 5th

Course Outcomes

Course Name :Engineering Hydrology, Course Code : KCE 055

After completion of this course, the student will be able to

CO-1 Understand the basic concept of hydrological cycle and its various phases..

CO-2 Understand the concept of runoff and apply the knowledge to construct the hydrograph.

CO-3 Apply the various methods to assess the flood.

CO-4 Assess the quality of various forms of water and their aquifer properties..

CO-5 Understand the well hydraulics and apply ground water modelling techniques.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	1	-	-	-	-	-	-	-	-	-	-	-	-
CO-2	3	3	3	2	-	-	-	-	-	1	-	2	-	-
CO-3	3	3	3	3	-	3	-	-	-	2	-	2	-	-
CO-4	3	2	2	2	-	2	-	-	-	2	-	-	-	-
CO-5	3	3	3	3	3	2	3	2	1	3	-	2	-	2



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## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester :5**  
**Course Outcomes**  
**Course Name : Mini Project, Course Code : KCE 554**

**After completion of this course, the student will be able to**

**CO-1:** Understand a system, component or process to meet desired progress of project

**CO-2:** Prepare Project Report for a project in Civil Engineering domain

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	2	2	2	-	-	3	2	1	2	3	1
CO-2	3	3	3	1	2	2	-	-	3	2	1	2	3	3



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 7th

Course Outcomes

Course Name : Geology and Soil Mechanics, Course Code : RCE 071

After completion of this course, the student will be able to

**CO-1:** Understand different rock forming minerals and their suitability as engineering material.

**CO-2:** Analyse folds and faults in rock masses & their behaviour.

**CO-3:** Summarize the concepts of earthquakes & landslides and preventive measures in earthquake/landslide prone areas.

**CO-4:** Examine the sites for tunnels, dams, bridges and highways.

**CO-5:** Understand basic concepts of soil mechanics.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	1	3	-	-	1	-	1	1	-	2	1	2
CO-2	3	3	2	3	-	1	2	-	1	1	-	2	1	-
CO-3	3	3	3	3	-	1	2	-	1	1	-	2	2	2
CO-4	3	3	3	3	1	2	2	1	2	2	2	2	3	3
CO-5	3	3	1	1	-	1	1	-	1	1	-	2	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 7th**  
**Course Outcomes**  
**Course Name : Industrial Training, Course Code : RCE 753**

**After completion of this course, the student will be able to**

**CO-1:** Develop new skills and awareness about state of art practices in various Engineering disciplines.

**CO-2:** Operate and communicate efficiently as a part of multi-tasking professionals' team.

**CO-3:** Apply reasoning and logical aptitude while working in society, dealing with real life problems.

**CO-4:** Compose and present technical reports effectively.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	1	-	1	2	1	1	1	1	1	2	2	2	2
CO-2	2	1	-	-	-	1	-	2	1	2	2	1	-	-
CO-3	1	1	-	-	-	2	-	1	1	1	1	2	-	-
CO-4	-	1	-	-	-	-	-	1	1	3	2	2	-	-



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## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 7th**  
**Course Outcomes**  
**Course Name : Mini Project, Course Code : RCE 752**

**After completion of this course, the student will be able to**

- CO-1:** Compose detailed project report for a project in civil engineering domain.  
**CO-2:** Design a system, component or process to meet desired progress of project.  
**CO-3:** Formulate solution to the different civil engineering projects.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	3	2	2	2	2	3	3	3	2	3	1
CO-2	3	3	3	3	2	2	2	2	3	2	3	2	3	3
CO-3	3	3	3	3	2	2	2	2	3	2	3	2	3	3



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(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**

**Academic Session : 2020 - 2021 Semester : 7th**

**Course Outcomes**

**Course Name : Non-Destructive Testing Lab, Course Code : RCE 751**

**After completion of this course, the student will be able to**

**CO-1:** Determine strength of the concrete using non-destructive testing methods.

**CO-2:** Determine strength of the steel using non-destructive testing methods.

**CO-3:** Apply specific codes, standards and specifications related to non-destructive methods for testing of concrete and structural steel.

**CO-PO Mapping**

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	3	3	1	1	-	2	1	-	2	-	1
CO-2	3	3	3	3	3	1	1	-	2	1	-	2	-	1
CO-3	3	3	3	3	-	-	-	2	-	-	-	2	-	-



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(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 7th**  
**Course Outcomes**  
**Course Name : Project-1, Course Code : RCE 754**

**After completion of this course, the student will be able to**

**CO-1:** Operate effectively as an individual and member of the team to solve complex civil engineering problems

**CO-2:** Apply engineering knowledge to solve real life problems and involve in self-learning process

**CO-3:** Apply modern tools for analysis and design of complex engineering problems

**CO-4:** Develop ethical solutions of engineering problems taking into account its impact on society, environment and sustainability

**CO-5:** Compose and present detailed project report of his/ her work and defend effectively.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	3	2	2	2	3	3	2	2	2	1	-
CO-2	3	3	3	2	2	2	2	2	2	2	1	2	3	-
CO-3	3	3	3	3	3	2	2	2	2	2	1	3	3	-
CO-4	3	3	3	2	2	2	3	3	2	2	1	2	2	-
CO-5	2	2	2	1	1	1	1	3	2	3	3	1	1	-





# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING

(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)



**Program : B.Tech (Civil Engineering)**  
**Academic Session : 2020 - 2021 Semester : 7th**

### Course Outcomes

**Course Name : Railways, Airports and Waterways, Course Code : RCE 076**

**After completion of this course, the student will be able to**

**CO1 :** Explain the importance of railway infrastructure.

**CO2 :** Identify the factors governing design of railway infrastructures.

**CO3 :** Analyse and design the railway track system.

**CO4 :** Understand the concepts of airport engineering and design components of airport.

**CO5 :** Associate with the concepts of water transport system.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
<b>CO-1</b>	1	1	1	-	-	-	-	-	1	1	-	1	-	-
<b>CO-2</b>	3	3	3	2	2	1	1	-	1	2	1	1	2	1
<b>CO-3</b>	2	1	1	-	2	-	-	-	1	1	1	1	-	-
<b>CO-4</b>	3	3	3	2	2	1	1	-	1	2	1	1	2	1
<b>CO-5</b>	1	1	1	-	-	-	-	-	1	1	-	1	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 7th

Course Outcomes

Course Name : Rural Development Engineering, Course Code : RCE 072

After completion of this course, the student will be able to

**CO-1:** Apply the basic concepts of rural development planning using appropriate technology.

**CO-2:** Apply the various techniques of rural housing construction using low cost construction material.

**CO-3:** Apply the knowledge of water supply & sanitation in rural development.

**CO-4:** Understand the concepts of low cost roads in rural areas.

**CO-5:** Assess the feasibility of low cost irrigation & watershed management techniques.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	1	3	1	2	3	3	1	1	2	-	2	-	1
CO-2	3	1	1	-	1	3	3	1	1	2	-	-	1	2
CO-3	3	2	2	1	-	1	1	1	2	1	-	-	-	-
CO-4	2	1	1	-	-	1	2	-	1	-	-	1	-	-
CO-5	2	3	3	-	-	1	1	-	1	-	-	1	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 7th

Course Outcomes

Course Name : Design of Structure - III, Course Code : RCE 701

After completion of this course, the student will be able to

**CO-1:** Understand properties of steel and types of loads acting on steel structures.

**CO-2:** Design welded and bolted type of connections for elementary steel structures.

**CO-3:** Design tension members for elementary steel structures.

**CO-4:** Design compression members such as simple columns, braced and latticed columns and column bases.

**CO-5:** Design flexural members such as beams, purlins and girders.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2	1	1	-	1	1	-	-	-	-	1	2	-
CO-2	3	3	3	2	-	1	1	3	1	-	-	1	3	-
CO-3	3	3	3	2	-	1	1	3	1	-	-	1	3	-
CO-4	3	3	3	2	-	1	1	3	1	-	-	1	3	-
CO-5	3	3	3	2	-	1	1	3	1	-	-	1	3	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 7th

Course Outcomes

Course Name : Structural Health Monitoring And Rehabilitation, Course Code : RCE 073

After completion of this course, the student will be able to

**CO-1:** Understand the fundamentals of maintenance and repair strategies.

**CO-2:** Identify for serviceability and durability aspects of concrete.

**CO-3:** Identify the materials and techniques used for repair of structures.

**CO-4:** Decide the appropriate repair and retrofitting techniques.

**CO-5:** Use appropriate health monitoring technique and demolition methods.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
<b>CO-1</b>	3	2	2	2	2	2	-	-	1	1	-	2	-	-
<b>CO-2</b>	3	3	-	2	2	2	-	-	1	1	-	2	-	-
<b>CO-3</b>	3	1	-	2	2	2	-	-	1	1	-	2	-	-
<b>CO-4</b>	3	3	3	2	2	2	-	-	1	1	-	2	-	-
<b>CO-5</b>	3	3	2	2	2	2	-	-	1	1	-	2	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 7th

Course Outcomes

Course Name : Understanding the Human Being Comprehensively-Human Aspirations and its Fulfilment, Course Code : ROE 074

After completion of this course, the student will be able to

**CO-1:** Understand the universal nature of human being and relatedness to others.

**CO-2:** Understand the human aspirations, goal, activities and purpose of life.

**CO-3:** Understand the harmony in self and nature.

**CO-4:** Understand human tradition and its various attributes.

**CO-5:** Develop sustainable solution to the problems of society and nature.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	-	-	-	-	-	3	3	3	3	1	-	-	-	-
CO-2	-	-	-	-	-	3	3	3	3	1	-	-	-	-
CO-3	-	-	-	-	-	3	3	3	3	1	-	-	-	-
CO-4	-	-	-	-	-	3	3	3	3	1	-	-	-	-
CO-5	-	-	2	-	-	3	3	3	3	1	1	1	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020 - 2021 Semester : 7th

Course Outcomes

Course Name : Water Resources, Course Code : RCE 702

After completion of this course, the student will be able to

CO-1: Explain the application of water in different irrigation methods.

CO-2: Design the canals and drainage sections.

CO-3: Design the regulatory and river training works.

CO-4: Design the weir, barrages and cross drainage works.

CO-5: Design the dams, spillways and explain the generation of hydroelectric power.

CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	2	2	1	1	-	1	1	-	1	-	-	1	-	-
CO-2	3	2	2	2	-	2	1	-	1	-	-	-	1	-
CO-3	2	2	2	2	-	1	2	-	1	-	-	-	1	-
CO-4	3	3	2	2	-	2	1	-	1	-	-	-	1	-
CO-5	3	2	2	-	-	2	2	-	1	-	-	1	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Engineering Hydrology & Ground Water Management, Course Code : RCE 085

After completion of this course, the student will be able to

**CO-1:** Understand the basic concept of hydrological cycle and its various phases.

**CO-2:** Understand the concept of run off and apply the knowledge to construct the hydrograph.

**CO-3:** Apply the various methods to assess the flood.

**CO-4:** Assess the quality of various forms of water and their aquifer properties.

**CO-5:** Understand the well hydraulics and apply ground water modelling techniques.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
<b>CO-1</b>	3	1	-	-	-	-	-	-	-	-	-	-	-	-
<b>CO-2</b>	3	3	3	2	-	-	-	-	-	1	-	2	-	-
<b>CO-3</b>	3	3	3	3	-	3	-	-	-	2	-	2	-	-
<b>CO-4</b>	3	2	2	2	-	2	-	-	-	2	-	-	-	-
<b>CO-5</b>	3	3	3	3	3	2	3	2	1	3	-	2	-	2



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## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Earthquake Resistant Design of Structure, Course Code : RCE 088

After completion of this course, the student will be able to

**CO-1:** Explain basic concept of seismology.

**CO-2:** Understand the technique of modelling of structures & dynamics of single degree of freedom system.

**CO-3:** Explain the dynamics of multi degree freedom system, idealization of structures and its seismic response.

**CO-4:** Design the earthquake resistant structures.

**CO-5:** Design the machine foundation.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
<b>CO-1</b>	2	2	1	1	-	-	-	-	-	-	-	-	-	-
<b>CO-2</b>	3	3	3	2	-	-	-	-	-	-	-	2	-	-
<b>CO-3</b>	3	3	3	3	-	-	-	-	-	-	-	2	-	-
<b>CO-4</b>	3	3	3	3	-	-	2	1	2	2	-	2	3	-
<b>CO-5</b>	3	3	3	3	-	-	2	2	2	2	-	2	3	-





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## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Project-2, Course Code : RCE 852

After completion of this course, the student will be able to

**CO-1:** Operate effectively as an individual and member of the team to solve complex civil engineering problems

**CO-2:** Apply engineering knowledge to solve real life problems and involve in self-learning process

**CO-3:** Apply modern tools for analysis and design of complex engineering problems

**CO-4:** Develop ethical solutions of engineering problems taking into account its impact on society, environment and sustainability

**CO-5:** Compose and present detailed project report of his/ her work and defend effectively.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	3	3	3	2	2	2	3	3	2	2	2	1	-
CO-2	3	3	3	2	2	2	2	2	2	2	1	2	3	-
CO-3	3	3	3	3	3	2	2	2	2	2	1	3	3	-
CO-4	3	3	3	2	2	2	3	3	2	2	1	2	2	-
CO-5	2	2	2	1	1	1	1	3	2	3	3	1	1	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Renewable Energy Resources, Course Code : ROE 086

After completion of this course, the student will be able to

**CO-1:** Identify various non-conventional energy resources and their applications.

**CO-2:** Interpret various methods of solar energy applications.

**CO-3:** Apply concept of geothermal energy conversion processes, magneto-hydrodynamics and fuel cells.

**CO-4:** Apply concept of wind energy conversion and thermionic conversions.

**CO-5:** Explain the conversion methodologies of biomass and ocean energy.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	3	1	-	-	-	-	-	-	-	-	-	2	-	-
CO-2	3	1	2	-	2	2	2	-	-	-	-	2	-	-
CO-3	3	1	2	2	2	2	2	-	2	1	1	2	-	-
CO-4	3	1	2	2	2	2	2	-	2	1	1	2	-	-
CO-5	3	1	2	2	2	2	2	-	-	-	-	2	-	-



## KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

### DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Seminar, Course Code : RCE 851

After completion of this course, the student will be able to

**CO-1:** Identify, understand and discuss current, real-world issues.

**CO-2:** Acquire, understand and convey intended meaning of chosen topic using verbal and non-verbal method of communication.

#### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
<b>CO-1</b>	2	2	-	-	2	1	2	1	2	2	-	2	-	-
<b>CO-2</b>	2	2	-	-	2	1	2	1	3	3	-	2	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Solid Waste Management, Course Code : RCE 084

After completion of this course, the student will be able to

**CO-1:** Understand the concept of solid waste management.

**CO-2:** Explain handling and processing of solid waste.

**CO-3:** Apply the concept of landfilling for disposal of solid waste.

**CO-4:** Design composting and other solid waste conversion units.

**CO-5:** Understand the various hazardous waste, risk assessment and legislation.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
<b>CO-1</b>	2	-	-	-	-	3	3	2	-	-	-	-	-	-
<b>CO-2</b>	3	-	-	-	-	3	3	2	-	-	-	2	-	-
<b>CO-3</b>	3	2	2	1	-	3	3	2	1	2	-	1	-	-
<b>CO-4</b>	3	2	2	1	-	3	3	2	1	2	-	2	-	-
<b>CO-5</b>	2	-	-	-	-	3	3	2	-	-	-	2	-	-



# KIET GROUP OF INSTITUTIONS, DELHI – NCR, GHAZIABAD

## DEPARTMENT OF CIVIL ENGINEERING



(An ISO – 9001:2008 Certified & 'A' Grade accredited Institution by NAAC)

Program : B.Tech (Civil Engineering)

Academic Session : 2020-21 Semester : 8th

Course Outcomes

Course Name : Value Relationship & Ethical Human Conduct, Course Code : ROE 088

After completion of this course, the student will be able to

**CO-1:** Understand the importance of relationship among humans and rest of nature.

**CO-2:** Understand the expressions for different established values.

**CO-3:** Apply the concept of justice in different relationships and contacts.

**CO-4:** Identify the role of education, health, production & justice in the society to maintain universal human order & undivided society.

**CO-5:** Understand the various human traditions and the linkages between those traditions.

### CO-PO Mapping

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1 (PO-13)	PSO-2 (PO-14)
CO-1	-	-	-	-	-	2	2	3	1	-	-	2	-	-
CO-2	-	-	-	-	-	2	2	3	1	-	-	2	-	-
CO-3	-	-	-	-	-	2	2	3	1	-	-	2	-	-
CO-4	-	-	-	-	-	2	2	3	1	-	-	2	-	-
CO-5	-	-	-	-	-	2	2	3	1	-	-	2	-	-