

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: 3

Semester: V

Course Name: Engineering Hydrology

Course Code: KCE 055

Course Coordinator Name: Shubham Kumar

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|--|---|-------------------------------|----------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Understand the basic concept of hydrological cycle and its various phases | PO-1, PO-2 | Understand | Factual |
| CO2 | Understand the concept of runoff and apply the knowledge to construct the hydrograph | PO-1, PO-2, PO-3, PO-4, PO-10, PO-12 | Analyse | Conceptual |
| CO3 | Apply the various methods to assess the flood | PO-1, PO-2, PO-3, PO-4, PO-6, PO-10, PO-12 | Create | Conceptual |
| CO4 | Assess the quality of various forms of water and their aquifer properties | PO-1, PO-2, PO-3, PO-4, PO-6, PO-10 | Analyse | Conceptual |
| CO5 | Understand the well hydraulics and apply ground water modelling techniques | PO-1, PO-2, PO-3, PO-4, PO-5, PO-6, PO-7, PO-8, PO-9, PO-10, PO-12, PSO-2 | Create | Conceptual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. MR. SHUBHAM KUMAR | | 5. | |
| 2. | | 6. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: 3

Semester: V

Course Name: Engineering Hydrology

Course Code: KCE 055

Course Coordinator Name: Shubham Kumar

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|------------|-------------|------------|----------|------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO2 | 3 | 3 | 3 | 2 | - | - | - | - | - | 1 | - | 2 | - | - |
| CO3 | 3 | 3 | 3 | 3 | - | 3 | - | - | - | 2 | - | 2 | - | - |
| CO4 | 3 | 2 | 2 | 2 | - | 2 | - | - | - | 2 | - | - | - | - |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 1 | 3 | - | 2 | - | 2 |
| PO Target | 3 | 2.4 | 2.75 | 2.5 | 3 | 2.3 | 3 | 2 | 1 | 2 | - | 2 | - | 2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Shubham Kumar | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: Structural Analysis
Course Outcomes

Academic Session: 2023-24
Course Code: KCE 502

Year: 3
Course Coordinator Name:

Semester: V
Dr. Kunal

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|--|---------------------------|----------------------------|-------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Identify determinacy and indeterminacy of structure. | PO1,PO2,PO3,PO4,PO12,PSO1 | Analyze | Conceptual |
| CO2 | Analyze different types of trusses for member forces. | PO1,PO2,PO3,PO4,PO12,PSO1 | Analyze | Conceptual |
| CO3 | Define strain energy and its application. | PO1,PO2,PO3,PO4,PO12,PSO1 | Apply | Conceptual |
| CO4 | Interpret Influence line diagram and its detail application. | PO1,PO2,PO3,PO4,PO12,PSO1 | Apply | Conceptual |
| CO5 | Analyze determinate arches for different loading conditions. | PO1,PO2,PO3,PO4,PO12,PSO1 | Analyze | Conceptual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Dr. Kunal Bisht | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: Structural Analysis

Academic Session: 2023-24
Course Code: KCE 502

Year: 3
Course Coordinator Name:

Semester: V
Dr. Kunal

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|------------|------------|---|---|---|---|---|----|----|------------|------------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 2 | 1 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | 3 | 2 | 1 | - | - | - | - | - | - | - | 3 | 2 | - |
| CO3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | 2 | 2 | - |
| CO4 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 3 | 1 | 2 | - | - | - | - | - | - | - | 2 | 1 | - |
| PO Target | 3 | 3 | 2.2 | 2.2 | - | - | - | - | - | - | - | 2.6 | 2.2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Dr. Kunal | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year:3

Semester: V

Course Name: Concrete Technology

Course Code: KCE051

Course Coordinator Name: Yasir Karim

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|--|-----------------------------------|-------------------------------|----------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Characterize the properties of materials for the production of concrete. | PO1, PO2, PSO2 | Apply | Factual, Conceptual |
| CO2 | Apply suitable admixtures to augment the properties of concrete. | PO1, PO2, PO5, PO7, PO12, PSO2 | Apply | Conceptual |
| CO3 | Interpret the properties of fresh and hardened concrete | PO1, PO2, PSO2 | Apply | Factual, Conceptual |
| CO4 | Design concrete mix proportions as per codal provisions. | PO3, PO8, PSO2 | Apply | Conceptual, Procedural |
| CO5 | Use advanced concrete as per field requirements. | PO1, PO6, PO12, PSO2 | Apply | Factual, Conceptual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Yasir Karim | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year:3

Semester: V

Course Name: Concrete Technology

Course Code: KCE051

Course Coordinator Name: Yasir Karim

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|----------|----------|----------|----------|------------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | - | - | 3 | - | 2 | - | - | - | - | 3 | - | 3 |
| CO3 | - | - | 3 | - | - | - | - | 3 | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - | 3 |
| CO5 | 3 | - | - | - | - | 2 | 3 | - | - | - | - | 3 | - | 3 |
| PO Target | 2.7 | 3 | 3 | - | 3 | 2 | 2.5 | 3 | - | - | - | 3 | - | 3 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Yasir Karim | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IIIrd Semester: Vth

Course Name: Geotechnical Engineering

Course Code: KCE501

Course Coordinator Name: Mr. Shikha Tyagi

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--------------------------------|----------------------------|---------------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Use the basic concepts of Index properties of soils in engineering Practices. | PO1,PO2,PO4,PO6,PO10,PO12 | Apply | Factual; Conceptual; Procedural |
| CO2 | Execute the knowledge of soil hydraulics in geotechnical engineering. | PO1,PO2,PO4,PO6,PO10,PO12 | Apply | Factual; Conceptual; Procedural |
| CO3 | Predict the compaction and consolidation characteristics of soils | PO1,PO2,PO4,PO6,PO10,PO12,PSO2 | Apply | Factual; Conceptual; Procedural |
| CO4 | Analyse the stress distributions in soils. | PO1,PO2,PO4,PO6,PO10,PO12 | Analyse | Factual; Conceptual; Procedural |
| CO5 | Interpret the earth pressure and related slope failures | PO1,PO2,PO4,PO6,PO10,PO12 | Apply | Factual; Conceptual; Procedural |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Ms. Shikha Tyagi | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session:2023-24

Year:IIIrd Semester: Vth

Course Name: Geotechnical Engineering

Course Code: KCE501

Course Coordinator Name: Ms. Shikha Tyagi

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | - | 1 | - | 1 | - | - | - | 1 | - | 1 | - | - |
| CO2 | 3 | 2 | - | 1 | - | 1 | - | - | - | 1 | - | 1 | - | 1 |
| CO3 | 3 | 2 | - | 1 | - | 1 | - | - | - | 1 | - | 1 | - | 1 |
| CO4 | 3 | 2 | - | 1 | - | 1 | - | - | - | 1 | - | 1 | - | - |
| CO5 | 3 | 2 | - | 1 | - | 1 | - | - | - | 1 | - | 1 | - | - |
| PO Target | 3 | 2 | - | 1 | - | 1 | - | - | - | 1 | - | 1 | - | 0.2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Ms. Shikha Tyagi | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IIIrd Semester: Vth

Course Name: Constitution of India, Law & Engineering

Course Code: KNC501

Course Coordinator Name: Mr. Siddharth Jain

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--------------------------------------|----------------------------|-------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Identify and explore the basic features and modalities about the Indian constitution | PO6, PO7 | Understand | Factual /Conceptual |
| CO2 | Differentiate and relate the functioning of Indian parliamentary system at the center and state level | PO6, PO7 | Analyze | Factual /Conceptual |
| CO3 | Differentiate different aspects of the Indian Legal System and its related bodies. | PO6, PO7, PO8 | Understand | Factual /Conceptual |
| CO4 | Discover and apply different laws and regulations related to engineering practices. | PO6, PO7, PO8, PO10 | Understand | Factual /Conceptual |
| CO5 | Correlate role of engineers with different organizations and governance model | PO6, PO7, PO8, PO9, PO10, PO11, PO12 | Understand | Factual /Conceptual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Siddharth Jain | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session:2023-24

Year:IVth Semester: VIIth

Course Name: Constitution of India, Law & Engineering

Course Code: KNC501

Course Coordinator Name: Mr. Siddharth Jain

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|---|---|---|---|-------------|----------|-------------|----------|----------|----------|----------|----------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | - | - |
| CO2 | - | - | - | - | - | 3 | 2 | - | - | - | - | - | - | - |
| CO3 | - | - | - | - | - | 3 | 2 | 1 | - | - | - | - | - | - |
| CO4 | - | - | - | - | - | 3 | 2 | 2 | - | 2 | - | - | - | - |
| CO5 | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - |
| PO Target | - | - | - | - | - | 2.80 | 2 | 1.67 | 2 | 2 | 2 | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Siddharth Jain | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: CAD LAB
Course Outcomes

Academic Session: 2023-24
Course Code: KCE 551

Year: 3
Course Coordinator Name:

Semester: V
Shubham Kumar

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--|-------------------------------|----------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Apply GIS software for geo-referencing, digitizing and interpreting satellite images. | PO1; PO2; PO3; PO4; PO5; PO9; PO10; PO12 | Apply | Conceptual; Procedural |
| CO2 | Apply software tools for numerical solution for the stress analysis of soil in geotechnical engineering problems. | PO1; PO2; PO3; PO4; PO5; PO9; PO10; PO12; PSO1 | Apply | Conceptual; Procedural |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. MR. SHUBHAM KUMAR | | 5. | |
| 2. MR. SIDDHARTH JAIN | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: CAD LAB

Academic Session: 2023-24
Course Code: KCE 551

Year: 3

Semester: V
Course Coordinator Name: Shubham Kumar

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|-----------|------------------------|---|------|---|---|---|---|---|---|----|----|----|----------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 1 | 3 | 3 | - | - | - | 1 | 1 | - | 1 | - | - |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | 1 | 1 | - | 1 | 2 | - |
| PO Target | 3 | 3 | 2.33 | 3 | 3 | - | - | - | 1 | 1 | - | 1 | 2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Shubham Kumar | | 5. | |
| 2. Mr. Siddharth Jain | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IIIrd Semester: Vth

Course Name: Geotechnical Engineering Lab

Course Code: KCE 552

Course Coordinator Name: Ms. Shikha Tyagi

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|--|--------------------------------|----------------------------|-------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Determine the index properties of soils. | PO1,PO2,PO3,PO6,PO9, PO10,PO12 | APPLY | FACTUAL& CONCEPTUAL |
| CO2 | Calculate the seepage in soil sample. | PO1,PO2,PO3,PO6,PO9, PO10,PO12 | APPLY | FACTUAL& CONCEPTUAL |
| CO3 | Determine the shear strength parameters of soil. | PO1,PO2,PO3,PO6,PO9, PO10,PO12 | APPLY | FACTUAL& CONCEPTUAL |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Ms. Shikha Tyagi | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session:2023-24

Year:IIIrd Semester: Vth

Course Name: Geotechnical Engineering Lab

Course Code: KCE 552

Course Coordinator Name: Ms. Shikha Tyagi

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 1 | - | - | 1 | - | - | 2 | 3 | - | 2 | - | - |
| CO2 | 3 | 3 | 1 | - | - | 1 | - | - | 2 | 3 | - | 2 | - | - |
| CO3 | 3 | 3 | 1 | - | - | 1 | - | - | 2 | 3 | - | 2 | - | - |
| PO Target | 3 | 3 | 1 | - | - | 1 | - | - | 2 | 3 | - | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Ms. Shikha Tyagi | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IVth

Semester: VIIth

Course Name: Concrete Lab

Course Code: KCE 751

Course Coordinator Name:

Mr. Yasir Karim

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--------------------------|----------------------------|-------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Conduct Quality Control tests on concrete making materials. | PO1, PO2, PSO2 | APPLY | Procedural |
| CO2 | Conduct Quality Control tests on fresh & hardened concrete. | PO1, PO2, PSO2 | APPLY | Procedural |
| CO3 | Design and test concrete mix. | PO1, PO2, PO3, PO4, PSO2 | CREATE | Procedural |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Yasir Karim | | 5. | |
| 2. Dr. Kunal Bisht | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Academic Session:2023-24

Year:IVth Semester: VIIth

Program Name: B.Tech

Course Name: Concrete Lab Course Code: KCE 751

Course Coordinator Name: Mr. Yasir Karim

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|----------|----------|---|---|---|---|---|----|----|----|----------|-------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 |
| PO Target | 3 | 2 | 3 | 2 | - | - | - | - | - | - | - | - | - | 2.33 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Yasir Karim | | 5. | |
| 2. Dr. Kunal | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech.

Academic Session: 2023-24

Year: 3rd Semester: 5th

Course Name: Quantity Estimation and Management Lab

Course Code: KCE553

Course Coordinator Name: Sarv Priya

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--------------------------------------|----------------------------|-----------------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Compute the quantities of material for construction of Building | PO1, PO10 | Apply | Conceptual Procedural |
| CO2 | Prepare the bill of quantities for project. | PO3, PO2, PO9, PO10, PO11, PO12 | Apply | Factual, Conceptual Procedural |
| CO3 | Draft the tender documents for project. | PO1, PO3, PO4, PO9, PO10, PO11, PO12 | Apply | Conceptual, Procedural |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Sarv Priya | | 5. | |
| 2. Mr. Siddharth Jain | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech. **Academic Session:** 2023-24 **Year:** 3rd **Semester:** 5th
Course Name: Quantity Estimation and Management Lab **Course Code:** KCE-553 **Course Coordinator Name:** Sarv Priya

CO-PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|-----------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | - | - | - | - | - | - | - | | 1 | - | - | - | - |
| CO2 | - | - | 3 | 2 | - | - | - | - | 1 | 2 | 1 | 1 | - | - |
| CO3 | - | - | 3 | 2 | - | - | - | - | 1 | 3 | 1 | 1 | - | - |
| POTarget | 3 | - | 3 | 2 | - | - | - | - | 1 | 2 | 1 | 1 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Sarv Priya | | | |
| 2. Mr. Siddharth Jain | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: 4

Semester: VII

Course Name: Rural Development-Administration & Planning

Course Code: KHU701

Course Coordinator Name: Shubham Kumar

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--|-------------------------------|----------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Understand the definitions, concepts and components of Rural Development | PO-1, PO-2, PO-3, PO-4, PO-6, PO-12, PSO-1 | Understand | Conceptual |
| CO2 | Describe the importance, structure, significance, resources of Indian rural economy | PO-1, PO-2, PO-3, PO-4, PO-12, PSO-1 | Understand | Conceptual |
| CO3 | Understand about the area development programs and its impact | PO-1, PO-2, PO-3, PO-4, PO-6, PO-12, PSO-1 | Understand | Conceptual |
| CO4 | Apply the concepts of Rural Development in rural entrepreneurship | PO-1, PO-2, PO-3, PO-4, PO-12, PSO-1 | Apply | Conceptual |
| CO5 | Understand about the using of different methods for human resource planning. | PO-1, PO-2, PO-3, PO-4, PO-12, PSO-1 | Understand | Conceptual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. MR. SHUBHAM KUMAR | | 5. | |
| 2. DR. KUNAL BISHT | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year:4

Semester: VII

Course Name: Rural Development-Administration & Planning

Course Code: KHU701

Course Coordinator Name: Shubham Kumar

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | 1 | 2 | - | 1 | - | - | - | - | - | 2 | 2 | - |
| CO2 | 2 | 2 | 2 | 2 | - | 1 | - | - | - | - | - | 2 | 2 | - |
| CO3 | 2 | 2 | 2 | 2 | - | 1 | - | - | - | - | - | 2 | 2 | - |
| CO4 | 2 | 2 | 2 | 2 | - | 1 | - | - | - | - | - | 2 | 2 | - |
| CO5 | 2 | 2 | 2 | 2 | - | 1 | - | - | - | - | - | 2 | 2 | - |
| PO Target | 2 | 2 | 1.8 | 2 | - | 1 | - | - | - | - | - | 2 | 2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Shubham Kumar | | 5. | |
| 2. Dr. Kunal Bisht | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year:4

Semester: VII

Course Name: Railway, Waterway and Airway Engineering

Course Code: KCE070

Course Coordinator Name: Yasir Karim

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|--|----------------------------------|-------------------------------|------------------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Understand the components of railway infrastructure | PO1, PO2, PO10, PO12 | Understand | Factual, Conceptual |
| CO2 | Illustrate the factors governing design of railway infrastructures | PO1, PO2, PO10, PO12, PSO1 | Apply | Factual, Conceptual, Procedural |
| CO3 | Understand various components of railway track system | PO1, PO2, PO10, PO12 | Understand | Conceptual, Procedural |
| CO4 | Apply the concepts of airport geometrics in airport engineering | PO1, PO2, PO10, PO12, PSO1 | Apply | Factual, Conceptual, Procedural |
| CO5 | Understand the various concepts of water transport system | PO1,PO2, PO10, PO12 | Understand | Conceptual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Yasir Karim | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: 4

Semester: VII

Course Name: Railway, Waterway and Airway Engineering

Course Code: KCE070

Course Coordinator Name: Yasir Karim

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|------------|---|---|---|---|---|---|---|------------|----|----------|----------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 1 | 1 | - | - | - | - | - | - | - | 1 | - | 1 | - | - |
| CO2 | 3 | 1 | - | - | - | - | - | - | - | 2 | - | 1 | 1 | - |
| CO3 | 1 | 1 | - | - | - | - | - | - | - | 1 | - | 1 | - | - |
| CO4 | 3 | 2 | - | - | - | - | - | - | - | 2 | - | 1 | 1 | - |
| CO5 | 1 | 1 | - | - | - | - | - | - | - | 1 | - | 1 | - | - |
| PO Target | 1.8 | 1.2 | - | - | - | - | - | - | - | 1.4 | - | 1 | 1 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Yasir Karim | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IVth

Semester: VIIth

Course Name: Renewable Energy Resources

Course Code: KOE074

Course Coordinator Name:

Ms. Shikha Tyagi

Course Outcomes

| CO No. | Statement of Course Outcome | Relevant POs/ PSOs/APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|----------------------------|-------------------------------|----------------------------|
| After completion of the course, the student will be able to | | | | |
| CO1 | Identify various non-conventional energy resources and their applications | 2 | Remember | Conceptual |
| CO2 | Interpret various methods of solar energy applications | 2,6 | Understand | Conceptual & Procedural |
| CO3 | Apply concept of geothermal conversion processes, magnetohydrodynamics and fuel cells | 2,6 | Apply | Conceptual & Procedural |
| CO4 | Apply concept of wind energy conversion and thermionic conversions | 2,6 | Apply | Conceptual & Procedural |
| CO5 | Explain the conversion methodology and biomass and ocean energy. | 2,6 | Understand | Conceptual & Procedural |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Ms. Shikha Tyagi | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session:2023-24

Year:IVth Semester: VIIth

Course Name: Renewable Energy Resources

Course Code: KOE074

Course Coordinator Name: Ms. Shikha Tyagi

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|------------|------------|------------|------------|------------|----------|------------|------------|------------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 1 | - | - | - | - | - | - | - | - | - | 2 | - | - |
| CO2 | 3 | 1 | 2 | - | 2 | 2 | 2 | - | - | - | - | 2 | - | - |
| CO3 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | - | 2 | 1 | 1 | 2 | - | - |
| CO4 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | - | 2 | 1 | 1 | 2 | - | - |
| CO5 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | 2 | - | - |
| PO Target | 3 | 1 | 1.6 | 1.2 | 1.6 | 1.6 | 1.6 | - | 0.8 | 0.4 | 0.4 | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Ms. Shikha Tyagi | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IVth

Semester: VIIth

Course Name: Solid Waste Management

Course Code: KCE075

Course Coordinator Name:

Mr. Siddharth Jain

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--|----------------------------|-------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Adapt the concept of solid waste management. | PO6,PO7,PO8, | Apply | Conceptual, Procedural |
| CO2 | Apply the various handling & processing methods for solid waste management. | PO1,PO6,PO7,PO8,PO12 | Apply | Procedural |
| CO3 | Apply the concept of land filling for disposal of solid waste. | PO2,PO3,PO4,PO6,PO7,PO 8,PO9,PO10,PO12 | Apply | Procedural |
| CO4 | Discover and apply different laws and regulations related to engineering practices. | PO1,PO2,PO3,PO4,PO6,PO 7,PO8,PO9,PO10,PO12 | Apply | Procedural |
| CO5 | Understand the various hazardous waste, risk assessment and legislation | PO6,PO7, PO8,PO12 | Understand | Conceptual, Factual |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Siddharth Jain | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: Solid Waste Management
CO - PO/PSO/APO Matrix

Academic Session:2023-24
Course Code: KCE075

Year:IVth Semester: VIIth
Course Coordinator Name: Mr. Siddharth Jain

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | - | - | - | - | - | 3 | 3 | 2 | - | - | - | - | - | - |
| CO2 | 1 | - | - | - | - | 3 | 3 | 2 | - | - | - | 2 | - | - |
| CO3 | - | 2 | 2 | 1 | - | 3 | 3 | 2 | 1 | 2 | - | 1 | - | - |
| CO4 | 2 | 2 | 2 | 1 | - | 3 | 3 | 2 | 1 | 2 | - | 2 | - | - |
| CO5 | - | - | - | - | - | 3 | 3 | 2 | - | - | - | 2 | - | - |
| PO Target | 1.5 | 2 | 2 | 1 | - | 3 | 3 | 2 | 1 | 2 | - | 1.8 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Siddharth Jain | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech.

Academic Session: 2023-24

Year: 4th

Semester: 7th

Course Name: Irrigation and Water Resource Engineering Course Code: KCE078 Course Coordinator Name: Sarv Priya

Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|--|----------------------------|---------------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Describe the components of hydrological cycle, evaporation process and consumptive use | PO-1, PO-2, PO-3, PO-4, PO-7 | Understand | Factual, Conceptual |
| CO2 | Apply the knowledge of stream flow measurement techniques and hydrograph theory for computation of run off. | PO-1, PO-2, PO-3, PO-4, PO-7, PO-9, PO-12 | Apply | Factual, Conceptual, Procedural |
| CO3 | Design different types of irrigation channels and water logging preventive measures | PO-1, PO-2, PO-3, PO-4, PO-7, PO-9, PO-11, PO-12, PSO-1, PSO-2 | Apply | Conceptual, Procedural |
| CO4 | Design the regulatory and control systems of canal and irrigation outlets | PO-1, PO-2, PO-3, PO-4, PO-7, PO-9, PO-12, PSO-1, PSO-2 | Apply | Conceptual, Procedural |
| CO5 | Apply the knowledge of ground water hydrology and determination of discharge through wells | PO-1, PO-2, PO-3, PO-4, PO-5, PO-6, PO-7, PO-9, PO-12 | Apply | Factual, Conceptual, Procedural |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Sarv Priya | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The strength of correlation between COs and POs/ PSOs/APOs should be represented as 1 (low correlation), 2 (medium correlation) and 3 (high correlation) in CO - PO/APO/PSO Matrix.
- ❖ If there is no correlation, then put a “-” (dash).

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech.

Academic Session: 2023-24

Year: 4th

Semester: 7th

Course Name: Irrigation and Water Resource Engineering Course Code:KCE078

Course Coordinator Name: Sarv Priya

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|------------|------------|------------|----------|----------|------------|---|----------|----|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | 2 | 1 | | | 1 | | | | | | | |
| CO2 | 3 | 2 | 1 | 2 | | | 1 | | 1 | | 1 | 1 | | |
| CO3 | 3 | 3 | 3 | 2 | | | 2 | | 1 | | 1 | 1 | 1 | 1 |
| CO4 | 3 | 3 | 2 | 2 | | | 2 | | 1 | | | | 1 | 1 |
| CO5 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | | | 1 | | |
| PO Target | 2.8 | 2.2 | 1.8 | 1.8 | 1 | 1 | 1.4 | | 1 | | 1 | 1 | 1 | 1 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1.Sarv Priya | | 5. | |
| 2. | | 6. | |
| 3. | | 7. | |
| 4. | | 8. | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: PROJECT
Course Outcomes

Academic Session: 2023-24
Course Code: KCE 753

Year: 4
Course Coordinator Name:

Semester: VII
Siddharth Jain

| After completion of the course, the student will be able to | | Relevant POs/ PSOs/ APOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|--|---|----------------------------|---------------------------------|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Work effectively as an individual and member of the team to solve complex engineering problems. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1 | Apply | Factual, Conceptual, Procedural |
| CO2 | Apply engineering knowledge to solve real life problems and involve in self-learning process. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1 | Apply | Conceptual, Procedural |
| CO3 | Apply research based knowledge and methods to arrive at valid conclusions. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1 | Apply | Factual, Conceptual, Procedural |
| CO4 | Apply modern tools for analysis and design of complex engineering problems. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO11, PO12, PSO1 | Apply | Conceptual, Procedural |
| CO5 | Develop ethical solutions of engineering problems taking into account its impact on society, environment and sustainability. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1 | Create | Conceptual, Procedural |
| CO6 | Compose and present detailed project report of his/her work and defend effectively. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1 | Apply | Procedural |

| | |
|-------------------------------------|-----------|
| Faculty Members Teaching the Course | Signature |
| MR. SIDDHARTH JAIN | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Civil Engineering

Program Name: B.Tech
Course Name: PROJECT

Academic Session: 2023-24
Course Code: KCE 753

Year: 4

Course Coordinator Name:

Semester: VII
Siddharth Jain

CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO/ APO | |
|------------------|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 1 | - |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | - |
| CO3 | 3 | 3 | 3 | 3 | 3 | 1 | 2 | - | - | - | 1 | 2 | 3 | - |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 3 | 3 | - |
| CO5 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | - |
| CO6 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 1 | - |
| PO Target | 2.8 | 2.8 | 2.8 | 2.3 | 2.1 | 1.6 | 2.0 | 2.6 | 2.2 | 2.2 | 1.5 | 2.0 | 2.1 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Mr. Siddharth Jain | | | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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