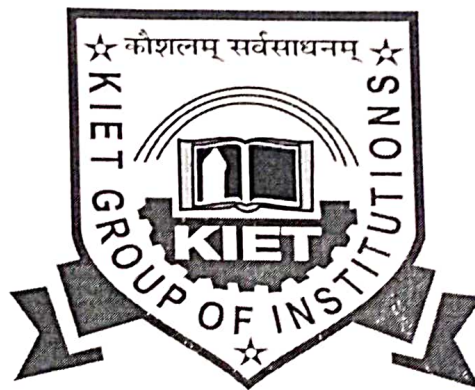**KIET GROUP OF INSTITUTIONS, GHAZIABAD**

**Department of Computer Science**

# Course Outcomes
## Session 2023-24

# Department of Computer Science

**13 KM STONE, GHAZIABAD-MEERUT ROAD, GHAZIABAD – 201206**

Website: www.kiet.edu

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

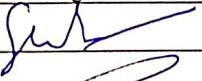**Program Name:** B.Tech     **Academic Session:** 2023-24     **Year:** 2nd     **Semester:** 3rd
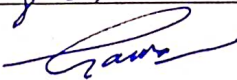
**Course Name:** Sensor & Instrumentation     **Course Code:** BOE305     **Course Coordinator Name:** Prof. SALIM

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the use of sensors for measurement of displacement, force and pressure. | PO1, PO2, PO3, PO4, PO11, PSO1, PSO2 | Understand | C, P |
| CO2 | Understand the use of sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level. | PO1, PO2, PO3, PO4, PO5, PO9, PO11, PSO1, PSO2 | Understand | C, P |
| CO3 | Apply the concept of virtual instrumentation in automation industries. | PO1, PO2, PO3, PO4, PO5, PO6, PSO1, PSO2 | Apply | F, P |
| CO4 | Understand, Identify and use data acquisition methods. | PO1, PO2, PO3, PO4, PO5, PO6, PSO1, PSO2 | Understand | C, P |
| CO5 | Comprise intelligent instrumentation in industrial automation. | PO1, PO2, PO3, PO4, PO5, PO6, PSO1, PSO2 | Understand | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. SALIM | | | |

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 Computer Science

Program Name: B.Tech  
Course Name: Sensor & Instrumentation  
Academic Session: 2023-24  
Course Code: BOE305  
Year: 2nd  
Semester: 3rd  
Course Coordinator Name: Prof. SALIM

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | 2 | - | 3 | 2 |
| CO2 | 3 | 3 | 2 | 3 | 2 | - | - | - | - | - | 3 | - | 2 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | 2 | - | 2 | 2 |
| CO4 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | - | - | - | 3 | - | 2 | 2 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | 2 | - | 2 | 2 |
| PO Target | 2.6 | 2.4 | 2 | 2.4 | 2.25 | 2.67 | 2 | - | - | - | 2.4 | - | 2.2 | 2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
| --- | --- | --- | --- |
| 1. Prof. SALIM | | | |

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 Computer Science

Program Name: B.Tech

Course Name: Universal Human Values

Academic Session: 2023-24

Year: 2nd

Course Code: BVE301

Semester: 3rd

Course Coordinator Name: Prof. Pawan Kr. Pal

## Course Outcomes

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

| CO No. | Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the process of self-exploration and meaning of natural acceptance. | PO6, PO7, PO8, PO9, PO10, PO12, PSO2 | Understand | C, P |
| CO2 | Explore the concept of harmony in the human being (in Myself) being 'I' & 'body' as separate entity | PO6, PO7, PO8, PO9, PO10, PO12 | Analyze | C, P |
| CO3 | Analyze the process of developing harmony in family and society. | PO6, PO7, PO8, PO9, PO10, PO12, PSO2 | Analyze | C, P |
| CO4 | Analyze the process of developing harmony in nature and existence. | PO6, PO7, PO8, POPO9, PO10, PO12 | Analyze | C, P |
| CO5 | Apply the role of holistic understanding of harmony of professional ethics. | PO6, PO7, PO8, PO9, PO10, PO12, PSO2 | Apply | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Pawan Kumar Pal | | | |
| 2. Prof. Arti Sharma | | | |
| 3. Prof. Rishabh 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)

❖ 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 Computer Science

Program Name: B.Tech.  
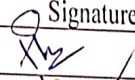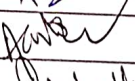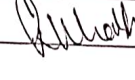Course Name: Universal Human Values  Academic Session: 2023-24  Course Code: BVE301  Year: 2nd  Semester: 3rd  
Course Coordinator Name: Prof. Pawan Kumar Pal

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | - | 1 | - | 1 |
| CO2 | - | - | - | - | - | 3 | 2 | 3 | 2 | 1 | - | 2 | - | - |
| CO3 | - | - | - | - | - | 3 | 2 | 3 | 2 | 1 | - | 2 | - | 2 |
| CO4 | - | - | - | - | - | 3 | 2 | 3 | 2 | 1 | - | 2 | - | - |
| CO5 | - | - | - | - | - | 3 | 2 | 3 | 2 | 1 | - | 2 | - | 2 |
| PO Target | - | - | - | - | - | 2.6 | 1.8 | 2.6 | 1.8 | 1 | - | 1.8 | - | 1.67 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Pawan Kumar Pal | | - | - |
| 2.Prof. Arti Sharma | | | |
| 3.Prof. Rishabh 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)

❖ 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.
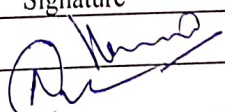
❖ If there is no correlation, then put a "-" (dash).

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech
Course Name: Data Structure
Course Outcomes

Academic Session: 2023-24
Course Code: BCS301

Year: 2nd
Semester: 3rd
Course Coordinator Name: Dr. Harsh Khatter

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Apply the concepts of Array and Linked List in problem solving. | PO1, PO2, PO3, PO12, PSO1, PSO2 | Apply | C,P |
| CO2 | Make use of linear and non-linear data structures to solve the complex problems like Expression Solving, Tower of Hanoi, etc | PO1, PO2, PO3, PO12, PSO1, PSO2 | Apply | C,P |
| CO3 | Implement various searching and sorting algorithms using data structure concepts. | PO1, PO2, PO3, PO12, PSO1, PSO2 | Apply | C,P |
| CO4 | Examine the performance of various data structures on different applications based on complexity and memory allocation. | PO1, PO2, PO3, PO4, PO12, PSO1, PSO2 | Analyze | C,M |
| CO5 | Make the solutions for scenario-based problems in terms of algorithm and programming code. | PO1, PO2, PO3, PO12, PSO1, PSO2 | Create | C,M |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Dr. Harsh Khatter | | | |
| 2. Prof. Anurag Mishra | | | |
| 3. Prof. Sreesh Gaur | | | |

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 Computer Science

Program Name: B.Tech
Course Name: Data Structure
Course Code: BCS301

Academic Session: 2023-24
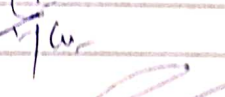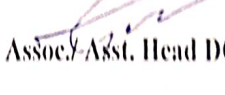
Year: 2nd

Semester: 3rd
Course Coordinator Name: Dr. Harsh Khatter

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | 2 | 3 | 2 |
| CO2 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | 2 | 3 | 2 |
| CO3 | 3 | 3 | 1 | - | - | - | - | - | - | - | - | 2 | 3 | 2 |
| CO4 | 3 | 3 | 1 | 2 | - | - | - | - | - | - | - | 2 | 3 | 2 |
| CO5 | 3 | 3 | 1 | - | - | - | - | - | - | - | - | 2 | 3 | 2 |
| PO Target | 3 | 3 | 1.40 | 2 | - | - | - | - | - | - | - | 2 | 3 | 2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
| --- | --- | --- | --- |
| 1. Dr. Harsh Khatter | | | |
| 2. Prof. Anurag Mishra | | | |
| 3. Prof. Sreesh Gaur | | | |

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).

# Department of Computer Science
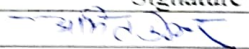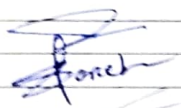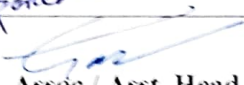
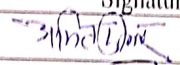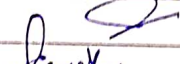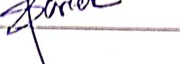Program Name: B.Tech    Academic Session: 2023-24    Year: 2nd    Semester: 3rd

Course Name: Computer Organization and Architecture    Course Code: BCS302    Course Coordinator Name: Prof. Amit Kumar Singh Sanger

## Course Outcomes

| CO No. | Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| | After completion of the course, the student will be able to | | | |
| CO1 | Relate the fundamental components of the basic computer system with its organization. | PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12 | Understand | C, P |
| CO2 | Illustrate the design of ALU, fixed- floating-point representations and various multiplication, division operations on binary numbers. | PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12 | Apply | C, P |
| CO3 | Interpret control unit design and concept of pipelining. | PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12 | Understand | C |
| CO4 | Apply the concept of different types of memories for designing of memory system. | PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12 | Apply | C, P |
| CO5 | Understand different ways of communication with I/O devices and standard I/O interfaces | PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12 | Understand | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | S |
|---|---|---|---|
| 1. Prof. Amit Kumar Singh Sanger | | | |
| 2. Prof. Akash Goel | | | |
| 3. Prof. Shreela Pareek | | | |

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 5 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 Computer Science

Program Name: B.Tech

Course Name: Computer Organization and Architecture   Course Code: BCS302

Academic Session: 2023-24   Year: 2nd   Semester: 3rd

Course Coordinator Name: Prof. Amit Kumar Singh Sanger

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | 1 | 2 | - | - | - | - | - | - | 1 | - | - | 1 |
| CO2 | 2 | 2 | 1 | 2 | - | - | - | - | - | - | 1 | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | - | - | 1 |
| CO4 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | - | - | 1 |
| CO5 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | - | - | 1 |
| PO Target | 2 | 2 | 1.60 | 2 | - | - | - | - | - | - | 1 | - | - | 1 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Amit Kumar Singh Sanger | | | |
| 2. Prof. Akash Goel | | | |
| 3. Prof. Shreela Pareek | | | |

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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❖ If there is no correlation, then put a "-" (dash).

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science
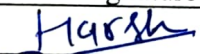
**Program Name:** B.Tech
**Course Name:** DSTL
**Course Outcomes**

Academic Session: 2023-24
Course Code: BCS303

Year: 2nd
Course Coordinator Name: Prof. Harshvardhan

Semester: 3rd

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Illustrate basic mathematical objects such as sets, relations, POSET and Lattices. | PO1, PO2, PO12, PSO2 | Apply | C,P |
| CO2 | Examine various structures and properties of Boolean algebra and functions. | PO1, PO2, PO7, PSO2 | Apply | C,P |
| CO3 | Explore the mathematical properties via formal language of propositional and predicate logic. | PO1, PO2, PO4, PO7, PO11, PO12, PSO1, PSO2 | Analyze | C,P |
| CO4 | Solve substantial experience of Algebraic Structure as groups, rings and fields. | PO1, PO2, PO4, PO11, PO12, PSO1, PSO2 | Apply | C,P |
| CO5 | Use graphs as tools to visualize and simplify the problems. | PO1, PO2, PO4, PO5, PO7, PO11, PO12, PSO1, PSO2 | Apply | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Harsh Vardhan | *Harsh* | | |
| 2. Prof. Pardeep Tyagi | *[signature]* | | |
| 3. Prof. Akanksha | *[signature]* | | |

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

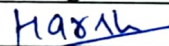## Department of Computer Science

Program Name:  B.Tech.  
Course Name: DSTL

Academic Session:    2023-24  
Course Code: BCS303

Year: 2nd  
Semester: 3rd  
Course Coordinator Name: Prof. Harshvardhan

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 1 | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| CO2 | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - | - | 2 |
| CO3 | 2 | 1 | - | 2 | - | - | 1 | - | - | - | 1 | 2 | 1 | 3 |
| CO4 | 3 | 1 | - | 2 | - | - | | - | - | - | 1 | 1 | 1 | 3 |
| CO5 | 2 | 1 | - | 2 | 3 | - | 1 | | | | 2 | 2 | 2 | 2 |
| PO Target | 2.6 | 1 | - | 2 | 3 | - | 1 | - | - | - | 1.33 | 1.40 | 1.33 | 2.0 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
| --- | --- | --- | --- |
| 1.  Prof. Harshvardhan | Harsh | | |
| 2.  Prof. Pardeep Tyagi | | | |
| 3.  Prof. Akanksha | | | |

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 Computer Science

Program Name: B.Tech
Course Name: Python Programming
**Course Outcomes**

Academic Session: 2023-24
Course Code: BCC302

Year: 2nd
Course Coordinator Name: Prof. Vishakha Chauhan

Semester: 3rd

| CO No. | Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Explain the fundamentals of Python syntax, semantics and programming. | PO1, PO2 | Understand | C |
| CO2 | Acquire proficiency in the handling of strings and functions and be fluent in the use of Python control flow statements. | PO1, PO2, PO3, PO4, PO12 | Apply | C, P |
| CO3 | Determine the methods for ease of user to write python programs by utilizing the data structures like lists, dictionaries, tuples and sets. | PO1, PO2, PO3, PO4, PO12 | Apply | C, P |
| CO4 | Interpret the commonly used operations involving file systems and regular expressions. | PO1, PO2, PO3, PO4, PO12 | Understand | F, C |
| CO5 | Explain and use of different in-built function of packages and connecting with GUI programming. | PO1, PO2, PO3, PO4, PO12 | Apply | C, P |

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Vishakha Chauhan | | | |
| 2. Rahul Kumar | | | |

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 Computer Science

**Program Name:** B.Tech
**Course Name:** Python Programming
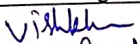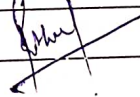
Academic Session: 2023-24
Course Code: BCC 302

Year: 2nd

Course Coordinator Name: Prof. Vishakha Chauhan

Semester: 3rd

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|----|----|-----|----|---|---|---|---|---|----|----|----|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO2 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO4 | 2 | 2 | 2 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO5 | 3 | 3 | 2 | 1- | - | - | - | - | - | - | - | 2 | - | - |
| PO Target | 2.4 | 2 | 1.5 | 1 | - | - | - | - | - | - | - | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Vishakha Chauhan | | | |
| 2. Rahul Kumar | | | |

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 Computer Science

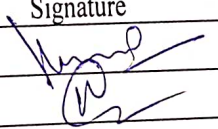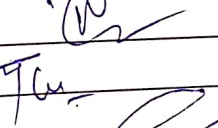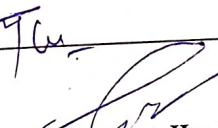**Program Name:** B.Tech.  **Academic Session:** 2023-24  **Year:** 2nd  **Semester:** 3rd

**Course Name:** Data Structures Lab  **Course Code:** BCS351  **Course Coordinator Name:** Prof. Anurag Mishra

## Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Perform the primitive operation on various types of data structures | PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2 | Apply | C, P |
| CO2 | Apply the concepts of data structure in problem solving. | PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2 | Apply | C, P |
| CO3 | Make a solution for the scenario-based problems in terms of algorithm and programming code on competitive platforms. | PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2 | Analyze | C, P |
| CO4 | Design a solution for a project-based problem as a team and present the solution in class | PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2 | Create | P, M |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Dr. Harsh Khatter | | | |
| 2. Prof. Anurag Mishra | | | |
| 3. Prof. Sreesh Gaur | | | |

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 Computer Science

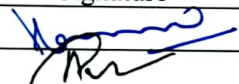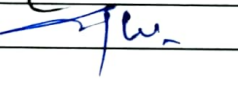**Program Name:** B.Tech.  **Academic Session:** 2023-24  **Year:** 2nd  **Semester:** 3rd

**Course Name:** Data Structure Lab  **Course Code:** BCS351  **Course Coordinator Name:** Prof. Anurag Mishra

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | 2 | 2 | 3 | - | - | - | - | - | - | 1 | 3 | 3 |
| CO2 | 3 | 3 | 2 | 2 | 3 | - | - | - | - | - | - | 2 | 2 | 2 |
| CO3 | 3 | 3 | 2 | 2 | 3 | - | - | - | - | - | - | 3 | 2 | 2 |
| CO4 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | - | - | 3 | 3 | 3 |
| PO Target | 3 | 2.75 | 2.25 | 2 | 3 | - | - | - | - | - | - | 2.25 | 2.5 | 2.5 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Harsh Khatter | | | |
| 2.Prof. Anurag Mishra | | | |
| 3.Prof. Sreesh Gaur | | | |

**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).

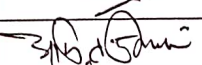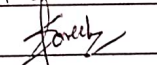# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech    Academic Session: 2023-24    Year: 2nd    Semester:3rd

Course Name:    COA Lab    Course Code: BCS352    Course Coordinator Name: Prof. Akash Goel

## Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Build half adder and full adder using basic logic gates and solve code conversions: binary to gray and gray to binary. | PO1, PO2, PO3, PO12, PSO1 | Apply | C,P |
| CO2 | Construct Multiplexers (4x1, 8x1) and Decoders (2x4, 3x8) | PO1, PO2, PO3, PO12, PSO1 | Apply | C,P |
| CO3 | Make use of excitation tables of various flip flops. | PO1, PO2, PO3, PO12, PSO1 | Apply | C,P |
| CO4 | Model 8-bit Arithmetic Logical unit. | PO1, PO2, PO3, PO12, PSO1 | Apply | C,P |
| CO5 | Model 8-bit input output system with four-bit internal registers. | PO1, PO2, PO3, PO12, PSO1 | Apply | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akash Goel | | | |
| 2.Prof. Amit Kumar Singh Sanger | | | |
| 3.Prof. Shreela Pareek | | | |

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.

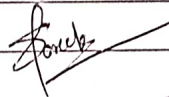# KIET Group of Institutions, Delhi – NCR, Ghaziabad
## Department of Computer Science

**Program Name:** B.Tech
**Course Name:** COA Lab

**Academic Session:** 2023-24
**Course Code:** BCS352

**Year:** 2nd
**Semester:** 3rd
**Course Coordinator Name:** Prof. Akash Goel

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |
| CO2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |
| CO3 | 3 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |
| CO4 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |
| CO5 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |
| PO Target | 2.20 | 1 | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akash Goel | | | |
| 2.Prof. Amit Kumar Singh Sanger | | | |
| 3.Prof. Shreela Pareek | | | |

**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.
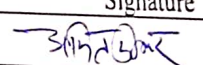
❖ If there is no correlation, then put a "-" (dash).

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

**Program Name:** B.Tech
**Course Name:** Web Design Workshop
**Course Outcomes**

## Department of Computer Science
**Academic Session:** 2023-24    **Year:** 2nd    **Semester:** 3rd
**Course Code:** BCS 353
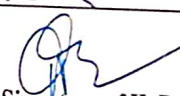**Course Coordinator Name:** Prof. Anmol Jain

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Implement advanced HTML tags for designing HTML pages. | PO1, PO2, PO3, PO4, PO5, PSO, PSO2 | Apply | P |
| CO2 | Implement elements of Cascading Style Sheet (CSS) for providing look and feel in web sites. | PO1, PO2, PO3, PO4, PO5, PSO1. PSO2 | Apply | P |
| CO3 | Implement Bootstrap components to design dynamic web sites. | PO1, PO3, PO4, PO5, PO12, PSO1, PSO 2 | Apply | P |
| CO4 | Understanding the basic concept of Java Script and its application. | PO1, PO4, PO5, PSO1, PSO2 | Understand | C |
| CO5 | Implement the validation and verification functions in web sites by using Java Script. | PO1, PO4, PO5, PSO1, PSO2 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Anmol Jain | | 2.Prof. Amit Kumar Singh Sangar | |

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.

## Department of Computer Science

Program Name: B.Tech | Academic Session: 2023-24 | Year: 2<sup>nd</sup> | Semester: 3<sup>rd</sup>
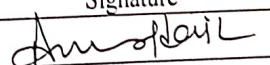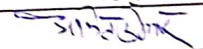
Program Name: B.Tech  
Course Name: Web Design Workshop  
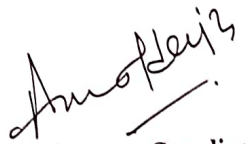
Academic Session: 2023-24  
Course Code: BCS 353  

Year: 2<sup>nd</sup>     Semester: 3<sup>rd</sup>  
Course Coordinator Name: Prof. Anmol Jain

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 1 | 1 | 2 | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 |
| CO2 | 1 | 1 | 2 | 1 | 2 | - | - | - | - | - | - | - | 1 | 1 |
| CO3 | 2 | - | 3 | 1 | 3 | - | - | - | - | - | - | 3 | 2 | 2 |
| CO4 | 1 | - | - | 1 | 1 | - | - | - | - | - | - | - | 1 | 1 |
| CO5 | 2 | - | - | 2 | 2 | - | - | - | - | - | - | 3 | 2 | 2 |
| PO Target | 1.4 | 1 | 2.33 | 1.2 | 1.8 | - | - | - | - | - | - | 3 | 1.4 | 1.4 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Anmol Jain | | 2.Prof. Amit Kumar Singh Sangar | |

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 Computer Science

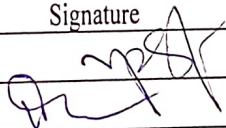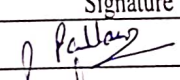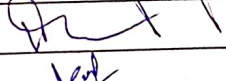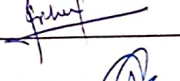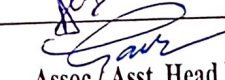Program Name: B.Tech     Academic Session: 2023-24     Year: 2$^{nd}$     Semester: 3$^{rd}$

Course Name: Mini Project/Internship Assessment     Course Code: BCC351     Course Coordinator Name: Prof. Rahul Kumar

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Analyze the real-life problem and their implementation through tools and techniques. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Analyze | C |
| CO2 | Describe the creative design process through the integration and application of diverse technical knowledge. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Understand | C |
| CO3 | Determine the possible solution to meet the requirements of the problem solving. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Apply | C |
| CO4 | Prepare solution by employing a variety of tools and techniques. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Apply | C |
| CO5 | Estimate the designed solution to ensure impact fullness towards the selected problem. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Understand | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vinay Pratap Singh | | 4.Prof. Pallavi Sharma | |
| 2.Prof. Vishakha Chauhan | | 5.Prof. Rahul Kumar | |
| 3.Prof. Abhishek Goyal | | | |

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 Computer Science

Program Name: B.Tech.

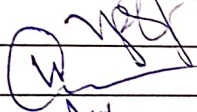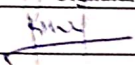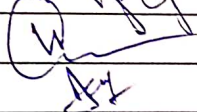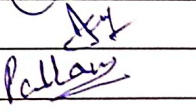Course Name: Mini Project/Internship Assessment

Academic Session: 2023-24

Course Code: BCC351

Year: 2nd

Semester: 3rd

Course Coordinator Name: Prof. Rahul Kumar

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|---|---|
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| PO Target | 3 | 3 | 2.6 | 2.4 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Prof. Vinay Pratap Singh |  | 5. Prof. Rahul Kumar |  |
| 2. Prof. Vishakha Chauhan |  |  |  |
| 3. Prof. Abhishek Goyal |  |  |  |
| 4. Prof. Pallavi Sharma |  |  |  |

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 Computer Science

Program Name: B.Tech
Course Name: Operating System
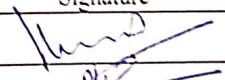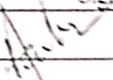Course Outcomes

Academic Session:  2023-24
Course Code: BCS401

Year: 2nd

Semester: 4th
Course Coordinator Name: Dr. Harsh Khatter

| CO No. | After completion of the course, the student will be able to | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|--------|--------------------------------------------------------------|--------------------|----------------------------|-------------------------|
| | Statement of Course Outcome | | | |
| CO1 | Understand the basic concepts, functions, and types of operating systems. | PO1, PSO1 | Understand | C |
| CO2 | Identify process synchronization techniques to achieve better performance of a computer system. | PO1, PO2, PO12, PSO1 | Understand | C |
| CO3 | Analyse different process scheduling algorithms and deadlock management techniques. | PO1, PO2, PO12, PSO1 | Analyze | C, P |
| CO4 | Compare various memory management mechanism used in the operating system. | PO1, PO2, PSO1 | Analyze | C, P |
| CO5 | Examine input and output management; and how the operating system performs the disk management. | PO1, PO2, PSO1 | Analyze | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1.Dr. Harsh Khatter | | 2.Prof. Arti Sharma | |
| 3.Prof. Punit Goyal | | | |

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 Computer Science

Program Name: B.Tech

Course Name: Operating System

Academic Session: 2023-24

Course Code: BCS401

Year: 2nd

Semester: 4th

Course Coordinator Name: Dr. Harsh Khatter

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Harsh Khatter | | 2.Prof. Arti Sharma | |
| 3.Prof. Punit Goyal | | | |

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.

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

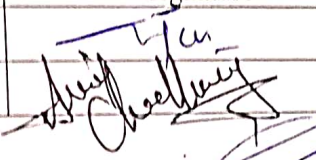**Department of Computer Science**

Program Name: B.Tech
Course Name: TAFL
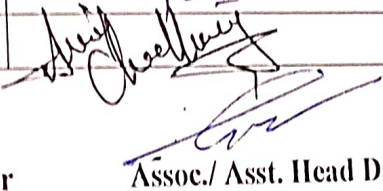**Course Outcomes**

Academic Session: 2023-24
Course Code: BCS402

Year: 2nd
Semester: 4th
Course Coordinator Name: Prof. Sreesh Gaur

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

| CO No. | Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|--------|-----------------------------|--------------------|----------------------------|-------------------------|
| CO1 | Understand basic concepts of automata theory and formal languages. | PO1, PO11, PO12, PSO1 | Analyze | C |
| CO2 | Construct finite automata and regular expressions for regular languages. | PO1, PO2, PO3, PO11, PO12, PSO1 | Apply | C |
| CO3 | Construct regular and context-free grammar for formal languages. | PO1, PO2, PO3, PO11, PO12, PSO1 | Analyze | C |
| CO4 | Construct the pushdown automata for context free languages. | PO1, PO2, PO3, PO11, PO12, PSO1 | Apply | C |
| CO5 | Construct Turing machines for formal languages. | PO1, PO2, PO3, PO11, PO12, PSO1 | Analyze | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1.Prof. Sreesh Gaur | | 2.Prof. Rajkumar | |
| 3.Prof. Amit Chaudhary | | | |

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 Computer Science

Program Name: B.Tech
Course Name: TAFL
CO - PO/PSO/APO Matrix

Academic Session: 2023-24
Course Code: BCS402

Year: 2nd    Semester: 4th
Course Coordinator Name: Prof. Sreesh Gaur

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | - | - | – | – | – | – | – | – | – | 1 | 1 | - | – |
| CO2 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 | 2 | 2 | - |
| CO3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 | 2 | 2 | - |
| CO4 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 | 2 | 2 | - |
| CO5 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 | 2 | 2 | - |
| PO Target | 2.8 | 2 | 2 | – | – | – | – | – | – | – | 1 | 1.80 | 2 | – |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Sreesh Gaur | | 2.Prof. Rajkumar | |
| 3.Prof. Amit Chaudhary | | | |

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 Computer Science

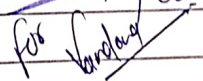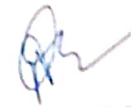**Program Name:** B.Tech      **Academic Session:** 2023-24      **Year:** 2nd      **Semester:** 4th
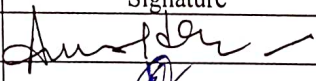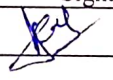
**Course Name:** Object Oriented Programming with Java      **Course Code:** BCS403      **Course Coordinator Name:** Prof. Anmol Jain
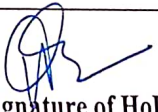
**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Implement core Java concepts that model real world entities. | PO1, PO2, PO3, PO4, PO5, PO12 | Apply | P |
| CO2 | Implement special features of Java like Exception Handling and Multithreading | PO1, PO2, PO3, PO4, PO5, PO12 | Apply | P |
| CO3 | Develop Programs based on New Java features (JDK 8+). | PO1, PO2, PO3, PO4, PO5, PO12 | Apply | P |
| CO4 | Apply a collection framework to build modular Java programs. | PO1, PO2, PO3, PO4, PO5, PO11, PO12 | Apply | P |
| CO5 | Implement web and RESTful Web Services with Spring Boot using Spring Framework concepts | PO1, PO2, PO3, PO4, PO5, PO11, PO12 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Anmol Jain | | 2.Prof. Abhishek Goyal | |
| 3.Dr. Kalpna Sagar | | | |

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.

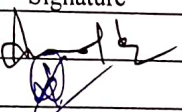# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech
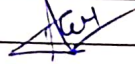Course Name: Object Oriented Programming with Java

Academic Session: 2023-24  Year: 2nd  Semester: 4th
Course Code: BCS403  Course Coordinator Name: Prof. Anmol Jain

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | 2 | - | - |
| CO2 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | 2 | 2 | 2 |
| CO3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | 3 | 3 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 3 | - | - | - | - | - | 2 | 3 | 2 | 2 |
| CO5 | 2 | 3 | 3 | 3 | 2 | - | - | - | - | - | 2 | 3 | 2 | 2 |
| PO Target | 2 | 2.8 | 2.2 | 2.2 | 2.2 | - | - | - | - | - | 2 | 2.6 | 2.25 | 2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Anmol Jain | | 2.Prof. Abhishek Goyal | |
| 3.Dr. Kalpna Sagar | | | |

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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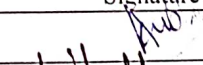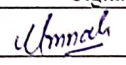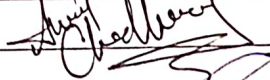# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

**Program Name: B.Tech**
**Course Name: Cyber Security**
**Course Outcomes**

Academic Session: 2023-24
Course Code: BCC401

Year: 2nd

Semester: 4th
Course Coordinator Name: Prof. Umnah

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Discuss the fundamental principles underlying cybersecurity and cybercriminal activities. | PO1,PO6,PO8 | Understand | F,C |
| CO2 | Explain the fraud and mitigating attacks targeting mobile devices. | PO1,PO6,PO8, PSO2 | Understand | C |
| CO3 | Explore the tools and techniques employed in cybercrime. | PO1,PO5,PO6,PO8, PSO2 | Understand | C |
| CO4 | Investigate the concepts of cyber forensics | PO1,PO2,PO6,PO8, PSO2 | Analyze | C |
| CO5 | Elaborate the cyber security policies and cyber laws | PO6, PO8 | Understand | F,C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Ms. Arushi Gupta | | 2.Ms. Unmah | Umnah |
| 3.Mr. Amit Choudhary | | | |

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 Computer Science

Program Name: B.Tech
Course Name: Cyber Security

Academic Session: 2023-24
Course Code: BCC401

Year: 2nd
Semester: 4th
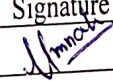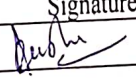Course Coordinator Name: Prof. Umnah

## CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|----|---|---|---|---|-----|---|-----|---|----|----|----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 1 | - | - | - | - | 3 | - | 3 | - | - | - | 2 | - | - |
| CO2 | 2 | 1 | - | - | - | 3 | | 2 | - | - | - | 2 | - | - |
| CO3 | 2 | - | - | - | 1 | 1 | - | 2 | - | - | - | 2 | - | - |
| CO4 | 2 | 1 | - | - | | 1 | - | 2 | - | - | - | 2 | - | - |
| CO5 | - | - | - | - | - | 3 | - | 3 | - | - | - | 2 | - | - |
| PO Target | 1.75 | 1 | - | - | 1 | 2.2 | - | 2.4 | - | - | - | 2 | | |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Umnah | *Umnah* | 2.Prof. Arushi Gupta | *Arushi* |
| 3.Prof. Amit Choudhary | *Amit* | | |

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.
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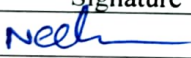# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

**Program Name: B.Tech**  
**Course Name: Maths IV**  
**Course Outcomes**

Academic Session: 2023-24  
Course Code: BAS403

Year: 2nd  
Course Coordinator Name: Dr. Neelam Sharma

Semester: 4th

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Solve partial differential equations by Lagrange, Charpit and other particular methods. | PO1, PO2, PO12, PSO1 | Apply | C, P |
| CO2 | Apply the method of separation of variables to solve Wave, Heat and Laplace equation. Application of Fourier transform. | PO1, PO2, PO3, PO12, PSO2 | Apply | C, P |
| CO3 | Determine moments, correlation, linear regression lines and obtain best fitting curves to the given data. | PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2 | Analyze | C, P |
| CO4 | Apply the concept of probability to solve discrete and continuous probability problems. | PO1, PO2, PO3, PO4, PO5, PO12, PSO2 | Apply | C, P |
| CO5 | Apply the theory of sampling to solve t-test, z-test and Chisquare test problems. | PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO12, PSO1 | Apply | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Neelam Sharma | Neel | | |

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 Computer Science

**Program Name:** B.Tech
**Course Name:** MathsIV

**Academic Session:** 2023-24
**Course Code:** BAS403

**Year:** 2nd
**Course Coordinator Name:** Dr. Neelam Sharma

**Semester:** 4th

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|---|---|
|        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | - | - | - | - | - | - | - | - | - | 2 | 1 | - |
| CO2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 | 1 | 1 |
| CO4 | 2 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 | - | 1 |
| CO5 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | 2 | 1 | - |
| PO Target | 2 | 1.8 | 1.75 | 1.67 | 1.67 | 2 | 2 | - | - | - | - | 1.80 | 1 | 1 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Dr. Neelam Sharma | Neel | | |

**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 Computer Science

Program Name: B.Tech
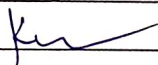Course Name: Technical Communication   Course Code: BAS401
**Course Outcomes**

Academic Session:   2023-24

Year: 2ⁿᵈ       Semester: 4ᵗʰ
Course Coordinator Name: Dr. Kavita Tiwari

| CO No. | After completion of the course, the student will be able to | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|--------|-------------------------------------------------------------|--------------------|----------------------------|-------------------------|
| | **Statement of Course Outcome** | | | |
| CO1 | Understand the nature and objective of Technical Communication relevant for the work place as Engineers. | PO7, PO9, PO10, PO12 | Understand | C |
| CO2 | Develop an understanding of key concepts of writing, designing and speaking. | PO7, PO9, PO10, PO12 | Apply | P |
| CO3 | Utilize the technical writing skills for the purposes of Technical Communication and its exposure in various dimensions. | PO7, PO9, PO10, PO12 | Apply | P |
| CO4 | Build up interpersonal communication traits that will make the transition from institution to workplace smoother and help them to excel in their jobs. | PO7, PO9, PO10, PO12 | Apply | C |
| CO5 | Apply technical communication to build their personal brand and handle crisis communication | PO7, PO9, PO10, PO12 | Apply | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Dr. Kavita Tiwari | | | |

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 Computer Science

Program Name: B.Tech

Course Name: Technical Communication

Academic Session: 2023-24

Course Code: BAS401

Year: 2$^{nd}$

Semester: 4$^{th}$

Course Coordinator Name: Dr. Kavita Tiwari

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Dr. Kavita Tiwari | | | |

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 Computer Science

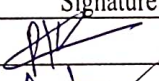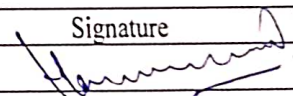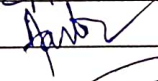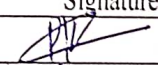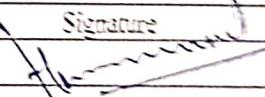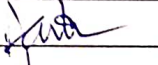Program Name: B.Tech     Academic Session: 2023-24     Year: 2$^{nd}$     Semester: 4$^{th}$

Course Name: Operating System Lab     Course Code: BCS451     Course Coordinator Name: Prof. Puneet Goyal

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand basic UNIX/LINUX commands and simple shell scripts to automate repetitive tasks, incorporating concepts like variables, loops, conditionals, and functions. | PO1, PO12 | Understand | C |
| CO2 | Demonstrate the knowledge of various CPU scheduling algorithms to identify the best algorithm as per software requirement. | PO1, PO2, PO12, PSO1 | Apply | P |
| CO3 | Examine process synchronization and principles of Deadlock avoidance using the Banker's Algorithm to ensure system safety. | PO1, PO2, PO12, PSO1 | Apply | P |
| CO4 | Determine the performance of various page replacement algorithms based on page fault rate. | PO1, PO2, PO12, PSO1 | Apply | P |
| CO5 | Investigate the various Disk scheduling algorithms based on metrics such as seek time, throughput etc. | PO1, PO2, PO12 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Puneet Goyal | | 2.Dr. Harsh Khatter | |
| 3.Prof. Arti Sharma | | | |

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 Computer Science

Program Name: B.Tech
Course Name: Operating System Lab

Academic Session: 2023-24
Course Code: BCS451

Year: 2nd
Course Coordinator Name: Prof. Puneet Goyal

Semester: 4th

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Puneet Goyal | | 2.Dr. Harsh Khatter | |
| 3.Prof. Arti Sharma | | | |

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 Computer Science

Program Name: B.Tech          Academic Session:  2023-24          Year: 2nd          Semester:4th
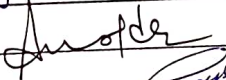
Course Name: Object Oriented Programming with Java Lab          Course Code: BCS452    Course Coordinator Name: Dr. Kalpna Sagar

## Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Demonstrate core JAVA OOPS concepts on an integrated development environment to solve real world problems. | PO1, PO5, PO12, PSO1, PSO2 | Apply | P |
| CO2 | Apply Exception Handling and Multithreading JAVA features in problem solving. | PO1, PO5, PO12, PSO1, PSO2 | Apply | P |
| CO3 | Solve problems in context of programming code based on New Java features (JDK 8+). | PO1, PO5, PO12, PSO1, PSO2 | Apply | P |
| CO4 | Complete a solution for case study-based problem using JAVA Collection framework. | PO1, PO5, PO11, PO12, PSO1, PSO2 | Apply | P |
| CO5 | Practice RESTful Web Services with Spring Boot Test using Spring Framework concepts | PO1, PO5, PO11, PO12, PSO1, PSO2 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Kalpna Sagar | | 2.Prof. Abhishek Goyal | |
| 3.Prof. Anmol 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 Computer Science

Program Name: B.Tech

Course Name: Object Oriented Programming with Java Lab

Academic Session: 2023-24    Year: 2nd    Semester: 4th

Course Code: BCS452    Course Coordinator Name: Dr. Kalpna Sagar

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Kalpna Sagar | | 2.Prof. Abhishek Goyal | |
| 3.Prof. Anmol 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 Computer Science

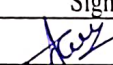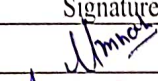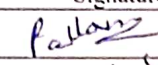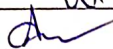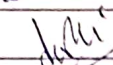Program Name: B.Tech     Academic Session: 2023-24     Year: 2nd     Semester: 4th

Course Name: Cyber Security Workshop     Course Code: BCS453     Course Coordinator Name: Prof. Umnah

## Course Outcomes

| CO No. | After completion of the course, the student will be able to – Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Apply Wireshark to identify irregular patterns within the network. | PO1, PO5, PO6, PO8, PO12, PSO2 | Analyze | P |
| CO2 | Demonstrate proficiency in web app security with DVWA | PO1, PO5, PO6, PO8, PO12, PSO2 | Apply | P |
| CO3 | Apply comprehension of the tools and techniques employed in Cyber Security. | PO1, PO5, PO6, PO8, PO12, PSO1, PSO2 | Apply | P |
| CO4 | Apply different encryption techniques | PO1, PO6, PO8, PO12, PSO1, PSO2 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Umnah | *[signature]* | 2. Prof. Pallavi Sharma | *[signature]* |
| 3. Prof. Amit Chaudhary | *[signature]* | 4. Prof. Arushi Gupta | *[signature]* |

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 Computer Science

Program Name: B.Tech  
Course Name: Cyber Security Workshop  
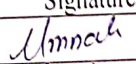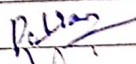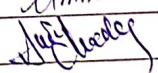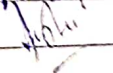
Academic Session: 2023-24  
Course Code: BCS453  

Year: 2nd  
Semester: 4th  
Course Coordinator Name: Prof. Umnah

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | - | - | - | 3 | 2 | - | 2 | - | - | - | 2 | - | 1 |
| CO2 | 2 | - | - | - | 3 | 2 | - | 2 | - | - | - | 2 | - | 1 |
| CO3 | 3 | - | - | - | 3 | 2 | - | 2 | - | - | - | 2 | 1 | 1 |
| CO4 | 3 | - | - | - | - | 2 | - | 2 | - | - | - | 2 | 2 | 1 |
| PO Target | 2.5 | - | - | - | 3 | 2 | - | 2 | - | - | - | 2 | 1.5 | 1 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Ms. Umnah | Umnah | 2.Ms. Pallavi Sharma | |
| 3.Mr. Amit Chaudhary | | 4.Ms. Arushi Gupta | |

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 Computer Science

**Program Name:** B.Tech    **Academic Session:** 2023-24    **Year:** 3rd    **Semester:** 5th

**Course Name:** DBMS    **Course Code:** KCS 501

**Course Coordinator Name:** Dr. Gaurav Dubey

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to<br>Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Illustrate the knowledge of database concepts along with selection of the data model and Conceptual design of database for real world. | PO1, PO2, PO3, PO12 | Apply | C, P |
| CO2 | Apply query processing techniques (relational algebra and relational calculus expressions) with knowledge of relational model and query languages. | PO1, PO2, PO3, PO4, PO12 | Apply | C, P |
| CO3 | Solve the database redundancy problem using normalization techniques for good database design. | PO1, PO2, PO3, PO4, PO12 | Analyze | C, P |
| CO4 | Explain the database transactions processing concepts and broad range of database management issues in concurrent environment. | PO1, PO2, PO3, PO12 | Apply | C, P |
| CO5 | Examine the different concurrency control techniques and study of database recovery methods. | PO1, PO2, PO3, PO12 | Apply | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. (Dr.) Ajay Shrivastava | | | |
| 2.Dr. Gaurav Dubey | | | |
| 3.Prof. Shivani | | | |

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 Computer Science

**Program Name:** B.Tech.  **Academic Session:** 2023-24  **Year:** 3rd  **Semester:** 5th
**Course Name:** DBMS  **Course Code:** KCS501  **Course Coordinator Name:** Dr. Gaurav Dubey

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. (Dr.) Ajay Shrivastava | | | |
| 2.Prof. (Dr.) Gaurav Dubey | | | |
| 3.Prof. Shivani | | | |

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 Computer Science

Program Name: B.Tech

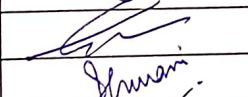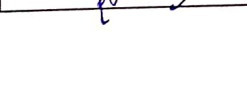Course Name: Compiler Design

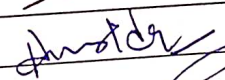Academic Session: 2023-24

Course Code: KCS502

Year: 3rd

Semester: 5th

Course Coordinator Name: Prof. Arti Sharma

### Course Outcomes

| CO No. | After completion of the course, the student will be able to – Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand different phases and passes of compiler along with LEX and YACC tool. | PO1, PO2, PO3, PO4, PO12 | Understand | C |
| CO2 | Illustrate various parsing techniques i.e. Top-Down and Bottom-up parsers using LL, SLR, CLR, and LALR parsing table. | PO1, PO2, PO3, PO12 | Apply | C,P |
| CO3 | Make use of Syntax Tree, DAG to generate the intermediate code in the form of 3-address code. | PO1, PO2, PO12 | Apply | C,P |
| CO4 | Apply data structures used for Symbol Table, Run time organization and error in phases of compiler. | PO1, PO2, PO12 | Understand | C |
| CO5 | Apply code optimization and Generation techniques resulting in Target Code. | PO1, PO2, PO3, PO12 | Apply | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Arti Sharma | | | |
| 2. Prof. Akash Goel | | | |
| 3. Prof. Anmol 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 Computer Science

Program Name: B.Tech.  
Course Name: Compiler Design  
Academic Session: 2023-24  
Course Code: KCS502  
Year: 3rd  
Semester: 5th  
Course Coordinator Name: Prof. Arti Sharma

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO2 | 3 | 3 | 1 | - | - | - | - | - | - | - | - | 2 | - | - |
| CO3 | 3 | 3 | - | - | - | - | - | - | - | - | - | 2 | - | - |
| CO4 | 3 | 2 | - | - | - | - | - | - | - | - | - | 2 | - | - |
| CO5 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | 2 | - | - |
| PO Target | 3 | 2.6 | 1.67 | 1 | - | - | - | - | - | - | - | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Arti Sharma | | | |
| 2. Prof. Akash Goel | | | |
| 3. Prof. Anmol Jain | | | |

Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addl. HoD    Signature of HoD

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# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

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

Academic Session:   2023-24
Course Code: KCS503

Year: 3rd                    Semester: 5th
Course Coordinator Name: Prof. Raj Kumar

| CO No. | After completion of the course, the student will be able to | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| | Statement of Course Outcome | | | |
| CO1 | Analyze the performance of algorithms using different asymptotic analysis methods | PO1, PO2, PO3, PO12, PSO1 | Analyze | C, M |
| CO2 | Understand the concept of Advance Data Structures | PO1, PO2, PO3, PO12, PSO1 | Understand | C |
| CO3 | Address computational problems using divide-and-conquer, greedy, and dynamic programming techniques | PO1, PO2, PO3, PO12, PSO1 | Apply | C, P |
| CO4 | Illustrate the applications of backtracking, branch-and-bound, string matching, and approximation algorithm. | PO1, PO2, PO3, PO12, PSO1 | Apply | C, P |
| CO5 | Understand the concept of P & NP-Problems | PO1, PO2, PO3, PO12, PSO1 | Understand | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.  Raj Kumar | | | |
| 2.  Anshula Gupta | | | |
| 3.  Vivek Kumar Sharma | | | |

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 Computer Science

Program Name: B.Tech

Course Name: DAA

Academic Session: 2023-24

Course Code: KCS503

Year: 3rd

Semester: 5th

Course Coordinator Name: Prof. Raj Kumar

### CO - PO/PSO/APO Matrix

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

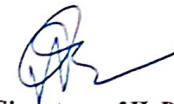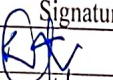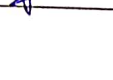| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Raj Kumar | | | |
| 2. Prof. Anshula Gupta | | | |
| 3. Prof. Vivek Kumar Sharma | | | |

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 Computer Science

**Program Name: B.Tech**
**Course Name:    OOSD**

**Academic Session:    2023-24**
**Course Code: KCS 054**

**Year: 3rd**
**Course Coordinator Name: Prof. Abhishek Goyal**

**Semester: 5th**

### Course Outcomes

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the insights of object-oriented programming. | PO2, PO3, PO4, PO12 | Understand | C |
| CO2 | Apply the role of overall modelling concepts using UML. | PO 2, PO3, PO4, PO5, PO12, PSO1 | Apply | C,P |
| CO3 | Understand various object-oriented structures (SA/SD, JSD) | PO2, PO3, PO4, PO5, PO12, PSO1 | Understand | C,P |
| CO4 | Apply programming language C++ w.r.t OOPS | PO2, PO3, PO4, PO12 | Apply | C,P |
| CO5 | Implement C++ in object-oriented modelling. | PO2, PO3, PO4, PO12 | Apply | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.   Prof. Vivek Sharma | | | |
| 2.   Prof. Vinay Kunar | | | |

**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 Computer Science

Program Name: B.Tech.  
Course Name: OOSD  

Academic Session: 2023-24  
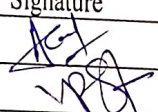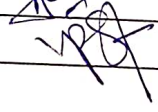Course Code: KCS 052  

Year: 3rd    Semester: 5th  
Course Coordinator Name: Prof. Abhishek Goyal

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | - | 2 | 3 | 2 | - | - | - | - | - | - | - | 2 | - | - |
| CO2 | - | 3 | 3 | 3 | 2 | - | - | - | - | - | - | 3 | 2 | - |
| CO3 | - | 3 | 3 | 2 | - | - | - | - | - | - | - | 3 | 2 | - |
| CO43 | 1 | 3 | 3 | 2 | - | - | - | - | - | - | - | 3 | - | - |
| CO5 | 1 | 3 | 3 | 2 | - | - | - | - | - | - | - | 3 | - | - |
| PO Target | 1 | 2.8 | 3 | 2.2 | 2 | - | - | - | - | - | - | 2.8 | 2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Abhishek Goyal | | 3. Prof. Vivek Sharma | |
| 2. Prof. Vinay Pratap Singh | | | |

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 Computer Science

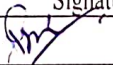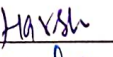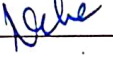Program Name: B.Tech     Academic Session: 2023-24     Year: 3rd     Semester: 5th

Course Name: Machine Learning Techniques     Course Code: KOE055     Course Coordinator Name: Prof. Pawan Kumar Pal

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the need for machine learning for various problem solving | PO2, PO6, PO10, PO11, PO12, PSO1 | Understand | C |
| CO2 | Understand a wide variety of learning algorithms and how to evaluate models generated from data | PO1, PO2, PO6, PO10, PO11, PO12, PSO1 | Apply | C,P |
| CO3 | Understand the latest trends in machine learning | PO2, PO6, PO10, PO11, PO12, PSO1 | Understand | C |
| CO4 | Design appropriate machine learning algorithms and apply the algorithms to a real-world problem. | PO1, PO2, PO6, PO9, PO10, PO11, PO12, PSO1 | Apply | C,P |
| CO5 | Optimize the models learned and report on the expected accuracy that can be achieved by applying the models | PO1, PO2, PO6, PO10, PO11, PO12, PSO1 | Apply | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Pawan Kumar Pal | | | |
| 2. Prof. Harsh Vardhan | | | |
| 3. Prof. Neha Shukla | | | |

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 Computer Science

Program Name: B.Tech.  Academic Session: 2023-24  Year: 3rd  Semester: 5th
Course Name: Machine Learning Techniques  Course Code: KOE055  Course Coordinator Name: Prof. Pawan K Pal

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | - | 1 | - | - | - | 2 | - | - | - | 1 | 1 | 1 | 2 | - |
| CO2 | 3 | 2 | - | - | - | 2 | - | - | - | 1 | 1 | 1 | 2 | - |
| CO3 | - | 1 | - | - | - | 2 | - | - | - | 1 | 1 | 1 | 2 | - |
| CO4 | 3 | 2 | - | - | - | 2 | - | - | 1 | 1 | 1 | 1 | 2 | - |
| CO5 | 2 | 2 | - | - | - | 2 | - | - | - | 1 | 1 | 1 | 2 | - |
| PO Target | 2.67 | 1.6 | - | - | - | 2 | - | - | 1 | 1 | 1 | 1 | 2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Pawan Kumar Pal | *signature* | | |
| 2. Prof. Harsh Vardhan | *Harsh* | | |
| 3. Prof. Neha Shukla | *Neha* | | |

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 Computer Science

**Program Name: B.Tech**     Academic Session: 2023-24     Year: 3rd     Semester: 5th
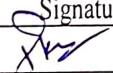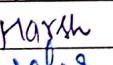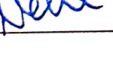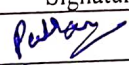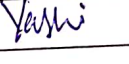
**Course Name:** COI     Course Code: KNC-501

**Course Coordinator Name:** Prof. Pallavi Sharma

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Identify the basic features and modalities about the Indian constitution. | PO6, PO8, PO12 | Understand | F /C |
| CO2 | Relate the functioning of the Indian parliamentary system at the center and state level. | PO6, PO8, PO12 | Understand | F/ C |
| CO3 | Differentiate between different aspects of the Indian Legal System and its related bodies. | PO6, PO8, PO12 | Understand | F /C |
| CO4 | Paraphrase intellectual property rights and innovation environment with related regulatory framework. | PO6, PO8, PO10, PO12 | Apply | F /P |
| CO5 | Relate the role of engineers with different organizations and governance models. | PO6, PO8, PO10, PO11, PO12 | Understand | F /C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Pallavi Sharma | *Pallav* | | |
| 2. Prof. Yashi Rastogi | *Yashi* | | |

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 Computer Science

Program Name: B.Tech.  
Course Name: COI

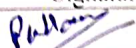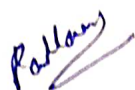Academic Session: 2023-24  
Course Code: KNC-501

Year: 3rd  
Course Coordinator Name: Prof. Pallavi Sharma

Semester: 5th

## CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.  Prof. Pallavi Sharma | Pallavi | | |
| 2.  Prof. Yashi Rastogi | Yashi | | |

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/PO/PSO Matrix.

❖ If there is no correlation, then put a "-" (dash).

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech     Academic Session: 2023-24     Year: 3rd     Semester: 5th

Course Name: DBMS Lab     Course Code: KCS551     Course Coordinator Name: Prof. Shivani

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO 1 | Implement the concepts of table creation, views, indexes and other database objects using Oracle 10g express edition. | PO1, PO2, PO4, PO5, PO11, PO12 | Apply | P |
| CO 2 | Solve simple and complex queries using DDL, DML, DCL and TCL. | PO1, PO2, PO4, PO11, PO12 | Apply | P |
| CO 3 | Utilize entity integrity, referential integrity, key constraints and domain constraints on database. | PO1, PO2, PO4, PO11, PO12 | Apply | P |
| CO 4 | Implement the PL/SQL blocks, procedure functions, packages and triggers, cursors. | PO1, PO2, PO4, PO11, PO12 | Apply | P |
| CO 5 | Design a database schema for a real-world problem like Hospital management system. | PO1, PO2, PO3, PO4, PO11, PO12, PSO1, PSO2 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Dr. Ajay Kumar Shrivastava | | | |
| 2. Dr. Gaurav Dubey | | | |
| 3. Prof. Shivani | | | |

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
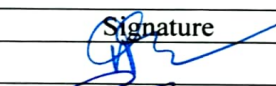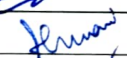
## Department of Computer Science

**Program Name:** B.Tech.　　**Academic Session:** 2023-24　　**Year:** 3rd　　**Semester:** 5th
**Course Name:** DBMS Lab　　**Course Code:** KCS551　　**Course Coordinator Name:** Prof. Shivani

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | - | 1 | 3 | - | - | - | - | - | 2 | 2 | - | - |
| CO2 | 3 | 3 | - | 3 | - | - | - | - | - | - | 2 | 2 | - | - |
| CO3 | 3 | 3 | - | 3 | - | - | - | - | - | - | 2 | 2 | - | - |
| CO4 | 3 | 3 | - | 3 | - | - | - | - | - | - | 2 | 2 | - | - |
| CO5 | 3 | 3 | 2 | 3 | - | - | - | - | - | - | 3 | 3 | 2 | 3 |
| PO Target | 3 | 3 | 2 | 2.60 | 3 | - | - | - | - | - | 2.20 | 2.20 | 2 | 3 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Dr. Ajay Kumar Shrivastava | | | |
| 2. Dr. Gaurav Dubey | | | |
| 3. Prof. Shivani | | | |

**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 Computer Science

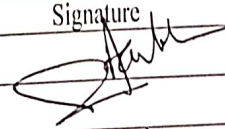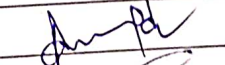Program Name: B.Tech     Academic Session: 2023-24     Year: 3rd     Semester: 5th

Course Name:   CD Lab     Course Code: KCS552     Course Coordinator Name: Prof. Akash Goel

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Implement the Lexical Analyzer using C language and LEX tool. | PO1, PO2, PO5, PO9, PO12 | Apply | C, P |
| CO2 | Experiment with the knowledge of different parsers (Operator precedence, shift reduce etc.) using C language. | PO1, PO2, PO9, PO12 | Apply | C, P |
| CO3 | Implement Intermediate code generation and optimization for various expressions. | PO1, PO2, PO9, PO12 | Apply | C, P |
| CO4 | Design a basic tool that showcase phase(s) of the compiler. | PO1, PO2, PO3, PO4, PO9, PO11, PO12, PSO1 | Apply | C, M |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Arti Sharma | | | |
| 2. Prof. Akash Goel | | | |
| 3. Prof. Anmol 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)

❖ 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
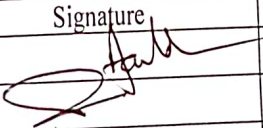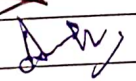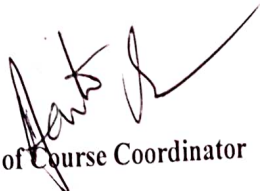## Department of Computer Science

Program Name: B.Tech.　　Academic Session: 2023-24　　Year: 3rd　　Semester: 5th
Course Name: CD Lab　　Course Code: KCS552　　Course Coordinator Name: Prof. Akash Goel

## CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | - | - | 2 | - | - | - | 1 | - | - | 2 | - | - |
| CO2 | 3 | 3 | - | - | - | - | - | - | 1 | - | - | 2 | - | - |
| CO3 | 3 | 3 | - | - | - | - | - | - | 1 | - | - | 2 | - | - |
| CO4 | 3 | 3 | 1 | 2 | - | - | - | - | 2 | - | 1 | 2 | 3 | - |
| PO Target | 3 | 3 | 1 | 2 | 2 | - | - | - | 1.25 | - | 1 | 2 | 3 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Arti Sharma | | | |
| 2. Prof. Akash Goel | | | |
| 3. Prof. Anmol 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)

❖ 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 Computer Science

Program Name: B.Tech
Course Name: DAA Lab
Course Outcomes

Academic Session: 2023-24
Course Code: KCS 553

Year: 3rd
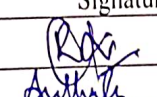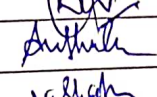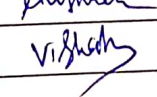
Semester: 5th
Course Coordinator Name: Prof. Anshula Gupta

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Implement algorithm to solve problems by iterative approach. | PO1, PO2, PO3, PO4, PO5, PO12, PSO1 | Apply | C, P |
| CO2 | Implement algorithm to solve problems by divide and conquer approach | PO1, PO2, PO3, PO4, PO5, PO12, PSO1 | Apply | C, P |
| CO3 | Implement algorithm to solve problems by Greedy algorithm approach. | PO1, PO2, PO3, PO4, PO5, PO12, PSO1 | Apply | C, P |
| CO4 | Implement algorithm to solve problems by Dynamic programming, backtracking, branch and bound approach | PO1, PO2, PO3, PO4, PO5, PO12, PSO1 | Apply | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Rajkumar | | | |
| 2.Prof. Anshula Gupta | | | |
| 3.Prof. Vishaka | | | |

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
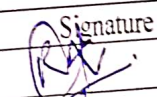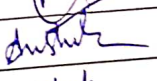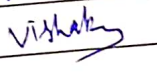## Department of Computer Science

Program Name: B.Tech.  
Course Name: DAA Lab

Academic Session: 2023-24  
Course Code: KCS 553

Year:3rd  
Semester: 5th  
Course Coordinator Name: Prof. Anshula Gupta

## CO - PO/PSO/APO Matrix
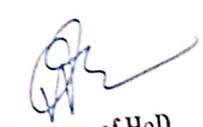
| CO No. | Programme Outcome (PO) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | PSO 1 | PSO 2 |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| CO1 | 3 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | 1 | 3 | - |
| CO2 | 3 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | 1 | 3 | - |
| CO3 | 3 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | 1 | 3 | - |
| CO4 | 3 | 2 | 1 | 2 | 3 | - | - | - | - | - | - | 1 | 3 | - |
| PO Target | 3 | 2 | 1 | 2 | 2.25 | - | - | - | - | - | - | 1 | 3 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Rajkumar | | | |
| 2.Prof.Anshula Gupta | | | |
| 3.Prof. Vishaka | | | |

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

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

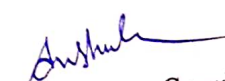## Department of Computer Science

Program Name: B.Tech
Course Name: Mini Project

Academic Session: 2023-24
Course Code: KCS554

Year: 3rd

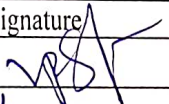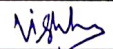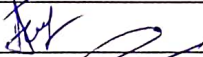Semester: 5th
Course Coordinator Name: Prof. Vinay Pratap Singh

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Identify a problem and gather its requirements | PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12, PSO1, PSO2 | Analyze | C |
| CO2 | Design a solution of the problem using latest tools & techniques. | PO1, PO2, PO3, PO4, PO5, PO9, PO11, PO12, PSO1, PSO2 | Understand | C |
| CO3 | Develop a project using latest technology. | PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO11, PO12, PSO1, PSO2 | Apply | C |
| CO4 | Develop professional skills and critical thinking to prepare for major project | PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Apply | C |
| CO5 | Demonstrate an ability to present project works to the evaluators. | PO1, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2 | Understand | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vinay Pratap Singh | | 4.Prof. Pallavi Sharma | |
| 2.Prof. Vishakha Chauhan | | | |
| 3.Prof. Abhishek Goyal | | | |

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
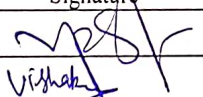## Department of Computer Science

Program Name: B.Tech.  
Course Name: Mini Project

Academic Session: 2023-24  
Course Code: KCS554

Year: 3rd  
Course Coordinator Name: Prof. Vinay Pratap Singh

Semester: 5th

## CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 3 | 3 | 3 | 2 | - | - | 2 | 2 | 2 | 3 | 2 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | 2 | - | 2 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 1 | - | - | 3 | - | 2 | 2 | 3 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | - | 2 | 3 | 2 | 2 | 3 | 2 | 2 |
| CO5 | 2 | - | - | - | - | - | - | 2 | 2 | 3 | 2 | 3 | 2 | 2 |
| PO Target | 2.8 | 3 | 3 | 3 | 3 | 1.67 | - | 2 | 2.4 | 2.33 | 2 | 2.80 | 2.2 | 2.2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Vinay Pratap Singh | | | |
| 2. Prof. Vishakha Chauhan | | | |
| 3. Prof. Abhishek Goyal | | | |
| 4. Prof. Pallavi Sharma | | | |

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 Computer Science

Program Name: B.Tech
Course Name: Software Engineering
Course Outcomes

Academic Session: 2023-24
Course Code: KCS601

Year: 3rd

Semester: 6th
Course Coordinator Name: Prof. Akash Goel

| CO No. | After completion of the course, the student will be able to | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|--------|---------------------------------|--------------------|----------------------------|-------------------------|
| | Statement of Course Outcome | | | |
| CO1 | Explain various software characteristics and different types of software development models. | PO1, PO2, PO3, PO4, PO11, PSO2 | Understand | C |
| CO2 | Prepare the contents of SRS and apply basic software quality assurance practices. | PO1, PO2, PO3, PO4, PO11, PSO2 | Apply | C |
| CO3 | Apply various methods for software design techniques. | PO1, PO2, PO3, PO4, PO11, PSO2 | Apply | C |
| CO4 | Illustrate various software testing techniques. | PO1, PO2, PO3, PO4, PO11, PSO2 | Apply | C |
| CO5 | Examine various software maintenance and project management techniques. | PO1, PO2, PO3, PO4, PO11, PSO2 | Apply | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akash Goel | | 2.Prof. Pardeep Tyagi | |
| 3.Prof. Akanksha | | | |

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
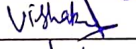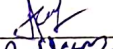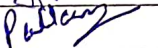
## Department of Computer Science

Program Name: B.Tech
Course Name: Software Engineering
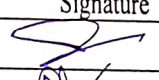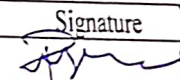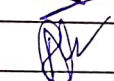
Academic Session: 2023-24
Course Code: KCS601

Year: 3rd    Semester: 6th
Course Coordinator Name: Prof. Akash Goel

## CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Akash Goel | | 2. Prof. Pardeep Tyagi | |
| 3. Prof. Akanksha | | | |

Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addtl. HoD    Signature of HoD

**Please Note (Reference: OBE Guidelines w.e.f. 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/PSO/APO Matrix.

- If there is no correlation, then put a "-" (dash).

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech          Academic Session: 2023-24          Year: 3rd          Semester: 6th

Course Name: Web Technology          Course Code: KCS602          Course Coordinator Name: Prof. Vivek Kumar Sharma

**Course Outcomes**

| | After completion of the course, the student will be able to | | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| CO No. | Statement of Course Outcome | | | | |
| CO1 | Develop Java programs for window/web-based applications with understanding of web development Strategies and Protocols governing Web. | | PO1, PO2, PO3, PO4, PSO1 | Apply | C, P |
| CO2 | Design web pages using HTML, XML, CSS and JavaScript. | | PO1, PO2, PO3, PO4, PSO1 | Apply | C, P |
| CO3 | Create of web pages using JavaScript & AJAX and client-server environment using socket programming. | | PO1, PO2, PO3, PO4, PSO1 | Apply | C, P |
| CO4 | Building enterprise level applications and manipulate web databases using JDBC | | PO1, PO2, PO3, PO4, PO12, PSO1 | Apply | C, P |
| CO5 | Design interactive web applications using Servlets and JSP | | PO1, PO2, PO3, PO4, PO12, PSO1 | Analyze | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vivek Kumar Sharma | | 2.Prof. Shivani | |
| 3.Prof. Vinay Pratap Singh | | | |

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
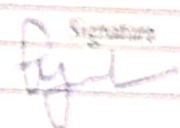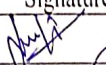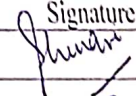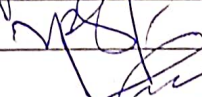
## Department of Computer Science

Program Name: B.Tech
Course Name: Web Technology

Academic Session: 2023-24
Course Code: KCS602

Year: 3rd

Semester: 6th
Course Coordinator Name: Prof. Vivek Kumar Shama

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 1 | 2 | 3 | 3 | - | - | - | - | - | - | - | - | - | - |
| CO2 | 1 | 1 | 3 | 1 | - | - | - | - | - | - | - | - | - | - |
| CO3 | 1 | 2 | 3 | 3 | - | - | - | - | - | - | - | - | - | - |
| CO4 | 1 | 2 | 3 | 3 | - | - | - | - | - | - | - | 2 | - | - |
| CO5 | 2 | 2 | 3 | 3 | - | - | - | - | - | - | - | 2 | - | - |
| PO Target | 1.2 | 1.8 | 3 | 2.6 | - | - | - | - | - | - | - | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vivek Kumar Sharma | | 2.Prof. Shivani | |
| 3.Prof. Vinay Pratap Singh | | | |

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 Computer Science

**Program Name: B.Tech**
**Course Name: Computer Network**
**Course Outcomes**

**Academic Session:** 2023-24
**Course Code: KCS603**

**Year: 3rd**
**Semester: 6th**
**Course Coordinator Name: Prof. Pawan Kumar Pal**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the basic concepts of networking, networking models, schemes and devices. | PO1, PO2, PO3, PO12, PSO1 | Understand | C |
| CO2 | Understand the different protocols used at application layer i.e. HTTP, SNMP, SMTP, FTP, TELNET and VPN. and the recent technologies on networking. | PO1, PO2, PO3, PO4, PO12, PSO1 | Understand | C |
| CO3 | Understand the data link layer and its components like channel allocation, framing, error and flow control techniques in computer networks. | PO1, PO2, PO3, PO4, PO12, PSO1 | Understand | C |
| CO4 | Apply various methods of Logical addressing, subnetting & Routing Mechanism on different practical scenarios. | PO1, PO2, PO3, PO4, PO12, PSO1 | Apply | C |
| CO5 | Analysis of various Transport Layer function i.e. Port addressing, Connection Management, Error control and Flow control mechanism based on the QoS parameters. | PO1, PO2, PO3, PO4, PO12, PSO1 | Apply | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Pawan Kumar Pal | | 2.Prof. Neha Shukla | |
| 3.Prof. Rahul | | | |

**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
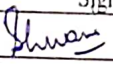
## Department of Computer Science

Program Name: B.Tech     Academic Session: 2023-24     Year: 3rd     Semester: 6th

Course Name: Computer Network     Course Code: KCS603     Course Coordinator Name: Prof. Pawan Kumar Pal
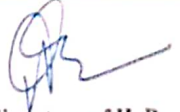
### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | 2 | - | - |
| CO2 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO4 | 3 | 3 | 2 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO5 | 3 | 3 | 2 | 1 | - | - | - | - | - | - | - | 2 | - | - |
| PO Target | 3 | 2.4 | 1.4 | 1 | - | - | - | - | - | - | - | 2 | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Pawan Kumar Pal | | 2.Prof. Neha Shukla | |
| 3.Prof. Rahul Kumar | | | |

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 Computer Science

Program Name: B.Tech     Academic Session: 2023-24     Year:3rd     Semester:6th
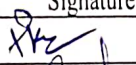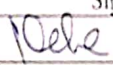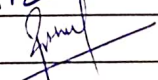
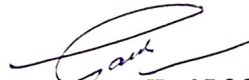Course Name: Big Data     Course Code: KCS061     Course Coordinator Name: Dr. Gaurav Dubey

**Course Outcomes**

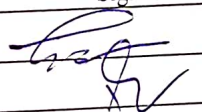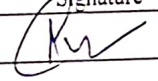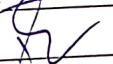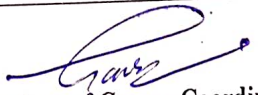| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the knowledge of Big Data concepts, its architecture and applications. | PO1, PO2, PO3, PO11, PSO2 | Apply | C |
| CO2 | Demonstrate the components of Hadoop and Map Reduce Framework. | PO1, PO2, PO3, PO5, PO11, PSO1, PSO2 | Apply | C |
| CO3 | Demonstrate the Hadoop Distributed File System and setting up it's environment. | PO1, PO2, PO3, PO11, PO12, PSO2 | Apply | C |
| CO4 | Demonstrate NoSQL database and tools for job scheduling. | PO1, PO2, PO3, PO5, PO11, PO12, PSO1, PSO2 | Apply | C |
| CO5 | Demonstrate Pig, HIVE and HBASE to abstract Hadoop Eco System. | PO1, PO2, PO3, PO5, PO11, PO12, PSO1, PSO2 | Apply | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Gaurav Dubey | | 2.Prof. Anurag Mishra | |
| 3.Prof. Pawan Kumar Pal | | | |

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 Computer Science

Program Name: B.Tech
Course Name: Big Data

Academic Session: 2023-24
Course Code: KCS061

Year:3rd
Semester:6th

Course Coordinator Name: Dr. Gaurav Dubey

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 2 | 2 | - | - | - | - | - | - | - | 2 | 2 | - | 2 |
| CO2 | 3 | 3 | 2 | - | 2 | - | - | - | - | - | 2 | 2 | 2 | 2 |
| CO3 | 3 | 1 | 2 | - | - | - | - | - | - | - | 2 | 2 | - | 2 |
| CO4 | 3 | 3 | 2 | - | 3 | - | - | - | - | - | 2 | 2 | 2 | 2 |
| CO5 | 3 | 3 | 2 | - | 3 | - | - | - | - | - | 2 | 2 | 1 | 2 |
| PO Target | 3 | 2.4 | 2 | - | 2.67 | - | - | - | - | - | 2 | 2 | 1.67 | 2 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Dr. Gaurav Dubey | | 2.Prof. Anurag Mishra | |
| 3.Prof. Pawan Kumar Pal | | | |

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 Computer Science

Program Name: B.Tech      Academic Session: 2023-24      Year: 3      Semester: VI
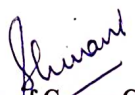
Course Name: Software Project Management      Course Code: KOE068

Course Coordinator Name: Prof. Shivani

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Determine the Cost benefit of the Projects with thorough understanding of project planning activities and the key phases of project management. | PO10, PO11, PO12 | Apply | P |
| CO2 | Utilize an appropriate management strategy after identifying the different project contexts. | PO1, PO2, PO9, PO11 | Apply | P |
| CO3 | Apply different software process models and cost estimation models for development of a project. | PO1, PO2 | Apply | P |
| CO4 | Make use of various project activities to compute critical path for risk analysis. | PO1, PO2 | Apply | P |
| CO5 | Illustrate the role of professional ethics in team building for successful software development. | PO3, PO8, PO9, PO10, PO12, PO14 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Shivani | | 2.Prof. Akash Goel | |

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
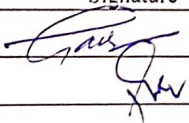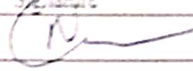
## Department of Computer Science

Program Name: B.Tech  
Course Name: Software Project Management    Course Code: KOE068

Academic Session: 2023-24

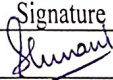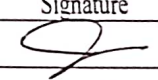Year:  3      Semester: VI  
Course Coordinator Name: Prof. Shivani

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Shivani | | 2.Prof. Akash Goel | |

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 Computer Science

**Program Name:** B.Tech
**Course Name:** Idea to Business Model
**Academic Session:** 2023-24
**Course Code:** KOE060
**Year:** 3rd
**Semester:** 6th
**Course Coordinator Name:** Prof. Anmol Jain

**Course Outcomes**

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the opportunities for carefully chosen business idea strategically. | PO1, PO2, PO4, PO5, PO6, PO9, PSO1, PSO2 | Understand | C |
| CO2 | Estimate the barriers in business and find the solutions for identified barriers. | PO1, PO2, PO3, PO4, PO5, PSO1, PSO2 | Understand | C |
| CO3 | Customize Entrepreneur Development Training Program. | PO10 | Apply | P |
| CO4 | Derive Production, Planning, and Control (PPC) steps. | PO3, PO4, PO7, PO11, PO12, PSO1, PSO2 | Apply | P |
| CO5 | Prepare communication and presentation skills. | PO10 | Apply | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Anmol 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)

❖ 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 Computer Science

Program Name: B.Tech
Course Name: Idea to Business Model

Academic Session: 2023-24
Course Code: KOE060

Year: 3rd
Semester: 6th
Course Coordinator Name: Prof. Anmol Jain

## CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Anmol 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)

❖ 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/PSO/APO Matrix.

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# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

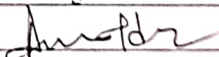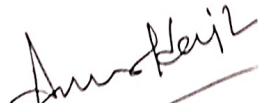Program Name: B.Tech  Academic Session: 2023-24  Year:3rd  Semester:6th
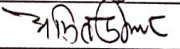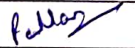Course Name: Indian Tradition, Culture and Society  Course Code: KNC602  Course Coordinator Name: Prof. Shreela Parekh

## Course Outcomes

| CO No. | After completion of the course, the student will be able to | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|--------|-------------------------------------------------------------|--------------------|----------------------------|-------------------------|
| | Statement of Course Outcome | | | |
| CO1 | Examine and associate the ancient roots and details of State & Societal formation with the understanding of Polity in India. | PO2, PO3, PO4, PO 5, PO 6, PO7, PO8, PO9, PO10, PO11 | Apply | F, C |
| CO2 | Examine the important knowledge of Indian Literature, Culture, Tradition, Practices to present Indian System. | PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO11 | Apply | F, C |
| CO3 | Correlate the Indian Religion, Philosophy, Practices and shadow of Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy in present system. | PO1, PO2, PO3, PO6, PO7, PO8, PO9, PO10, PO11 | Analyze | F, C |
| CO4 | Explore the Indian Knowledge System, Science & Management in modern perspectives | PO1, PO2, PO3, PO6, PO7, PO8, PO9, PO10, PO11 | Analyze | C,P |
| CO5 | Examine the Indian Architect, Engineering and Architecture in Ancient India, Indian's Cultural Contribution to the World and to explore an environment in Arts and Cultural for the present system. | PO1, PO2, PO3, PO4, PO 5, PO 6, PO7, PO8, PO9, PO10, PO11 | Analyze | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1.Mr. Amit Kumar Sanger | | 2.Ms. Shreela Pareek | |
| 3.Mrs. Pallavi | | | |

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 Computer Science

**Program Name: B.Tech**  **Academic Session:** 2023-24  **Year:**3rd  **Semester:**6th
**Course Name: Indian Tradition, Culture and Society**  **Course Code: KNC602**  **Course Coordinator Name: Prof. Shreela Parekh**

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | - | 2 | 2 | 1 | 2 | - | 2 | 2 | 2 | 1 | - | - | - | - |
| CO2 | 2 | 1 | 2 | - | 2 | - | 2 | 2 | 2 | 1 | - | - | - | - |
| CO3 | 1 | 1 | 2 | - | - | - | 2 | 2 | 1 | 2 | - | - | - | - |
| CO4 | 2 | 2 | 2 | - | - | - | 2 | 2 | 2 | 2 | - | - | - | - |
| CO5 | 2 | 1 | 2 | 2 | 2 | - | 2 | 2 | 2 | 2 | - | - | - | - |
| PO Target | 1.75 | 1.4 | 2 | 1.5 | 2 | - | 2 | 2 | 1.8 | 1.6 | - | - | - | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Amit Kumar Singh Sanger | | 2.Prof. Shreela Pareek | |
| 3.Prof. Pallavi | | | |

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 Computer Science

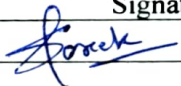Program Name: B.Tech     Academic Session: 2023-24     Year:3ʳᵈ     Semester:6ᵗʰ

Course Name: Software Engineering Lab     Course Code: KCS651     Course Coordinator Name: Prof. Pardeep Tyagi

### Course Outcomes

<table>
<tr><th colspan="2">After completion of the course, the student will be able to</th><th rowspan="2">Relevant POs/ PSOs</th><th rowspan="2">Revised Bloom's Level (BL)</th><th rowspan="2">Knowledge Category (KC)</th></tr>
<tr><th>CO No.</th><th>Statement of Course Outcome</th></tr>
<tr><td>CO1</td><td>Discover ambiguities, inconsistencies and incompleteness in SRS document and to identify its functional and non-functional requirements.</td><td>PO1, PO2, PO3, PO4, PO5, PSO2</td><td>Apply</td><td>C</td></tr>
<tr><td>CO2</td><td>Demonstrate use case diagrams by identifying different actors and use cases from a given problem statement.</td><td>PO1, PO2, PO3, PO4, PO5, PSO2</td><td>Apply</td><td>C</td></tr>
<tr><td>CO3</td><td>Prepare a class diagram after identifying classes and association among them.</td><td>PO1, PO2, PO3, PO4, PO5, PSO2</td><td>Apply</td><td>C</td></tr>
<tr><td>CO4</td><td>Illustrate UML diagrams and associations among them by identifying the logical sequence of activities undergoing in a system.</td><td>PO1, PO2, PO3, PO4, PO5, PSO2</td><td>Apply</td><td>C</td></tr>
<tr><td>CO5</td><td>Articulate the use of modern engineering tools for software specification, design, implementation and testing.</td><td>PO1, PO2, PO3, PO4, PO5, PSO2</td><td>Apply</td><td>C</td></tr>
</table>

<table>
<tr><td>Faculty Members Teaching the Course</td><td>Signature</td><td>Faculty Members Teaching the Course</td><td>Signature</td></tr>
<tr><td>1.Prof. Pardeep Tyagi</td><td></td><td>2.Prof. Akanksha</td><td></td></tr>
<tr><td>3.Prof. Akash Goel</td><td></td><td></td><td></td></tr>
</table>

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

Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addl. HoD    Signature of HoD

## Department of Computer Science

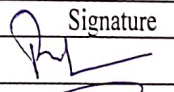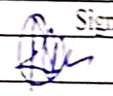Program Name: B.Tech    Academic Session: 2023-24    Year:3rd    Semester:6th

Course Name: Software Engineering Lab    Course Code: KCS651    Course Coordinator Name: Prof. Pardeep Tyagi

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Pardeep Tyagi | | 2.Prof. Akanksha | |
| 3.Prof. Akash Goel | | | |

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 Computer Science

**Program Name:** B.Tech  **Academic Session:** 2023-24  **Year:** 3<sup>rd</sup>  **Semester:** 6<sup>th</sup>

**Course Name:** Web Technology Lab  **Course Code:** KCS652  **Course Coordinator Name:** Prof. Vinay Pratap Singh

**Course Outcomes**

| | After completion of the course, the student will be able to | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Develop static web pages using HTML, CSS. | PO2, PO3, PO4, PO5, PO6, PO12, PSO1 | Apply | C |
| CO2 | Develop Java programs for window/web-based applications. | PO1, PO3, PO4, PO5, PO6, PO12, PSO1 | Apply | C |
| CO3 | Design dynamic web pages using Javascript and XML. | PO2, PO3, PO4, PO5, PO6, PO12, PSO1 | Apply | C |
| CO4 | Design dynamic web page using server site programming Ex. SERVLET and JSP. | PO2, PO3, PO4, PO5, PO6, PO12, PSO1 | Apply | C |
| CO5 | Design server site applications using JDDC, ODBC and session tracking API. | PO3, PO4, PO5, PO6, PO12, PSO1 | Apply | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vinay Pratap Singh | | 2.Prof. Vivek Sharma | |
| 3.Prof. Shivani | | | |

**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 Computer Science

Program Name: B.Tech     Academic Session: 2023-24     Year: 3rd     Semester: 6th
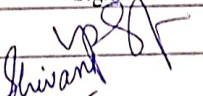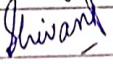
Course Name: Web Technology Lab     Course Code: KCS652     Course Coordinator Name: Prof. Vinay Pratap Singh
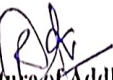
## CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vinay Pratap Singh | [signature] | 2.Prof. Vivek Sharma | [signature] |
| 3.Prof. Shivani | | | |

| Signature of Course Coordinator | Assoc./ Asst. Head DOC | Signature of Addl. HoD | Signature of HoD |
|---|---|---|---|
| [signature] | [signature] | [signature] | |

**Please Note (Reference: OBE Guidelines w.e.f. 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 Computer Science

Program Name: B.Tech
Course Name: Computer Networks Lab
Course Outcomes

Academic Session: 2023-24
Course Code: KCS653

Year: 3rd
Semester:6th
Course Coordinator Name: Prof. Rahul Kumar

| CO No. | After completion of the course, the student will be able to | | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| | Statement of Course Outcome | | | | |
| CO1 | Examine the networking commands and configuring network hardware. | | PO1, PO2, PO3, PO4, PO5, PO11 | Apply | C |
| CO2 | Demonstrate the working of different network topologies. | | PO1, PO3, PO4, PO5, PO11 | Apply | C |
| CO3 | Apply the concepts of Framing, stop & wait ARQ, Network addressing and routing. | | PO1, PO2, PO3, PO4 | Apply | C |
| CO4 | Construct the Transport layer protocols-based sockets for various applications. | | PO1, PO2, PO3, PO4, PO5, PO11 | Apply | C |
| CO5 | Implement transport and security mechanisms. | | PO1, PO2, PO3, PO4, PO5, PO11 | Apply | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Rahul Kumar | | 2.Prof. Neha Shukla | |
| 3.Prof. Pawan Kumar Pal | | | |

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

Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addl. HoD    Signature of HoD

**Department of Computer Science**

Program Name: B.Tech
Course Name: Computer Networks Lab

Academic Session: 2023-24    Year: 3rd    Semester: 6th
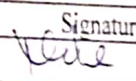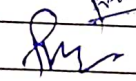Course Code: KCS653
Course Coordinator Name: Prof. Rahul Kumar

## CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | 2 | 3 | 2 | - | - | - | - | - | - | - | 1 | 2 |
| CO2 | 2 | - | 2 | 2 | 2 | - | - | - | - | - | - | - | 1 | 2 |
| CO3 | 2 | 2 | 3 | 3 | - | - | - | - | - | - | - | - | 2 | - |
| CO4 | 3 | 3 | 2 | 3 | 2 | - | - | - | - | - | - | - | 1 | 1 |
| CO5 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 | 2 |
| PO Target | 2.4 | 2.25 | 2.4 | 2.6 | 2 | - | - | - | - | - | - | - | 1.2 | 1.75 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Rahul Kumar | | 2.Prof. Neha Shukla | |
| 3.Prof. Pawan Kumar Pal | | | |

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 Computer Science

**Program Name:** B.Tech
**Course Name:** Software Testing
**Course Outcomes**

**Academic Session:** 2023-24
**Course Code:** KCS076

**Year:** 4th
**Semester:** 7th
**Course Coordinator Name:** Prof. Shreela Pareek

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the basics of software testing, its objectives, validation and verification approach | PO1, PO2, PO4, PO8, PO10, PO11, PSO1 | Understand | C |
| CO2 | Illustrate various functional and structural testing methods of software products. | PO1, PO2, PO4, PSO1 | Apply | C, P |
| CO3 | Determine the process of Test Selection for Regression Testing and minimization of test cases | PO1, PO2, PO4, PSO1 | Understand | C, P |
| CO4 | Explore testing activities and test data generation tools. | PO1, PO2, PO4, PO5, PO12, PSO1 | Analyze | C, P |
| CO5 | Apply object oriented and web application test cases on Testing tools. | PO1, PO2, PO4, PO5, PO12, PSO1 | Apply | C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akanksha | | | |
| 2.Prof. Abhishek Goyal | | | |
| 3.Prof. Shreela Pareek | | | |

**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 Project having 7 to 12 credits should have 6 to 10 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 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 Computer Science

Program Name: B.Tech.
Course Name: Software Testing

Academic Session: 2023-24
Course Code: KCS076

Year: 4th      Semester: 7th
Course Coordinator Name: Prof. Shreela Pareek

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akanksha | | | |
| 2.Prof. Devendra Gautam | | | |
| 3.Prof. Shreela Pareek | | | |

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.

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## KIET Group of Institutions, Delhi – NCR, Ghaziabad

### Department of Computer Science

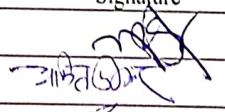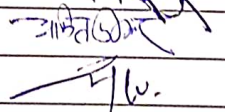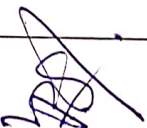Program Name: B.Tech     Academic Session: 2023-24     Year: 4th     Semester: 7th

Course Name: Cloud Computing     Course Code: KCS713

Course Coordinator Name: Prof. Vinay Pratap Singh

Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Articulate the main concepts, key technologies, strengths and limitations of cloud computing. | PO1, PO5, PO8, PO12 | Understand | F, C |
| CO2 | Understand the key and enabling technologies like virtualization in Cloud Computing | PO1, PO5, PO12 | Understand | F, C |
| CO3 | Interpret the architecture of cloud computing, cloud storage, service and delivery models. | PO1, PO5, PO12 | Understand | F, C |
| CO4 | Understand the core issues of cloud computing such as resource management and security. | PO1, PO5, PO12 | Understand | F, C |
| CO5 | Classify cloud technologies for the next generation computing paradigm. | PO1, PO5, PO12 | Analyze | F, C, P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Vinay Pratap Singh | | | |
| 2. Prof. Amit Sanger | | | |
| 3. Prof Sreesh Gaur | | | |

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

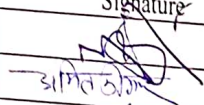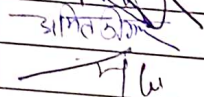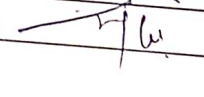## Department of Computer Science

Program Name: B.Tech.
Course Name: Cloud Computing

Academic Session: 2023-24
Course Code: KCS713

Year: 4th          Semester: 7th
Course Coordinator Name: Prof. Vinay Pratap Singh

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - |
| CO2 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - |
| CO3 | 2 | 3 | - | 2 | 2 | - | - | - | - | - | - | 2 | 2 | - |
| CO4 | 2 | 3 | - | 2 | 3 | - | - | - | - | - | - | 2 | 2 | - |
| CO5 | 2 | 3 | - | 3 | 3 | - | - | - | - | - | 2 | 2 | 2 | - |
| PO Target | 2 | 2.6 | - | 2.2 | 2.4 | - | - | - | - | - | 2 | 2.2 | 2.2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Vinay Pratap Singh | | | |
| 2.Prof. Amit Sanger | | | |
| 3. Prof Sreesh Gaur | | | |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

**Please Note (Reference: OBE Guidelines w.e.f. 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.

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# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

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

Academic Session: 2023-24
Course Code: KHU 702

Year: 4th

Semester: 7th
Course Coordinator Name: Prof. Neha Shukla

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the theories of entrepreneurship and entrepreneurial development program. | PO6, PO9, PO10 | Understand | |
| CO2 | Categorize innovative business ideas and market opportunities for business development. | PO3, PO6, PO9, PO11, PSO2 | Analyze | C |
| CO3 | Discuss the importance of project life cycle and different types of appraisal techniques. | PO6, PO9, PO10, PO11 | Understand | C, P |
| CO4 | Compute different types of project financing requirements based on cash flow statements. | PO6, PO9, PO11, PSO1 | Apply | C |
| CO5 | Describe social entrepreneurship opportunities and risk management techniques in social enterprises. | PO6, PO9, PO11, PSO2 | Understand | C, P |
| | | | | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Neha Shukla | | | |
| 2.Prof. Anshula Gupta | | | |
| 3.Prof. Shivani | | | |

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
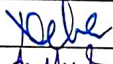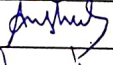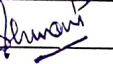
## Department of Computer Science

Program Name: B.Tech.
Course Name: PME

Academic Session: 2023-24
Course Code: KHU702

Year: 4th
Semester: 7th
Course Coordinator Name: Prof. Neha Shukla

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | - | - | - | - | - | 1 | - | - | 2 | 1 | - | - | - | - |
| CO2 | - | - | 1 | - | - | 1 | - | - | 3 | - | 2 | - | - | 1 |
| CO3 | - | - | - | - | - | 2 | - | - | 3 | 2 | 3 | - | - | - |
| CO4 | - | - | - | - | - | 1 | - | - | 3 | 2 | 3 | - | - | - |
| CO5 | - | - | - | - | - | 2 | - | - | 2 | - | 1 | - | - | 2 |
| PO Target | - | - | 1 | - | - | 1.4 | - | - | 2.6 | 1.67 | 2.25 | - | - | 1.50 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Neha Shukla | | | |
| 2. Prof. Anshula Gupta | | | |
| 3. Prof. Shivani | | | |

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 Computer Science

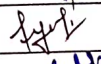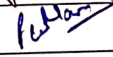Program Name: B.Tech

Course Name: RER

Academic Session: 2023-24

Course Code: KOE-074

Year: 4th

Semester: 7th

Course Coordinator Name: Prof. Rahul Kumar

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Classify the renewable and non- renewable sources of energy. | PO1, PO2, PO7 | Understand | F |
| CO2 | Illustrate the working principle of various solar energy system. | PO1, PO2, PO7 | Understand | F,C |
| CO3 | Discuss the Geothermal & Tidal energy, its mechanism of production and its applications. | PO1, PO2, PO12 | Understand | F,C |
| CO4 | Interpret winds energy as alternative form of energy and its tapping. | PO1, PO2, PO7, PO12 | Remember | F,C |
| CO5 | Summarize the basics of biomass energy sources and relevant thermos-dynamics | PO1, PO2, PO7 | Understand | F,C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Prof. Rahul Kumar | | | |
| 2. Prof. Pradeep Tyagi | | | |
| 3. Prof. Pallavi Sharma | | | |

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 Computer Science

Program Name: B.Tech.  
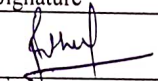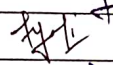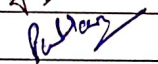Course Name: RER

Academic Session: 2023-24  
Course Code: B.Tech

Year: 4th  

Semester: 7th  
Course Coordinator Name: Prof. Rahul Kumar

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1. Prof. Rahul Kumar | | | |
| 2. Prof. Pradeep Tyagi | | | |
| 3. Prof. Pallavi Sharma | | | |

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 Computer Science

Program Name: B.Tech     Academic Session: 2023-24     Year: 4th     Semester: 7th

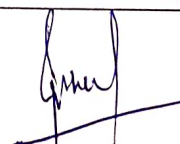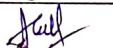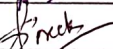Course Name: ST Lab     Course Code: KCS751A     Course Coordinator Name: Prof. Akanksha

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Derive effective test cases based on software requirements. | PO1, PO2, PO4, PO8, PO9, PO12 | Apply | P |
| 2 | Apply a wide variety of testing techniques in an effective way. | PO1, PO2, PO4, PO5, PO8, PO12, PSO1 | Apply | P |
| 3 | Simulate various test scenarios using automated software testing tool (Selenium). | PO1, PO2, PO4, PO5, PO8, PO12, PSO1 | Apply | P |
| 4 | Analyze test plan for the project and report generation using Mantis BT. | PO1, PO2, PO4, PO5, PO8, PO9, PO12, PSO1 | Analyze | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akanksha | | | |
| 2.Prof. Abhishek Goyal | | | |
| 3.Prof. Shreela Pareek | | | |

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 Computer Science

Program Name: B.Tech.
Course Name: ST Lab

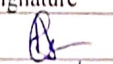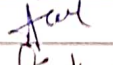Academic Session: 2023-24
Course Code: KCS751A

Year: 4th
Semester: 7th
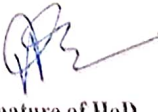Course Coordinator Name: Prof. Akanksha

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 2 | 2 | - | 1 | - | - | - | 1 | 1 | - | - | 2 | 2 | - |
| CO2 | 2 | 2 | - | 1 | - | - | - | 1 | 1 | - | - | 2 | - | - |
| CO3 | 2 | 2 | - | 1 | 3 | - | - | 1 | 1 | - | - | 2 | 2 | |
| CO4 | 2 | 2 | - | 1 | 3 | - | - | 1 | 2 | - | - | 2 | 2 | - |
| PO Target | 2 | 2 | - | 1 | 3 | - | - | 1 | 1.25 | - | - | 2 | 2 | - |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akanksha | | | |
| 2.Prof. Abhishek Goyal | | | |
| 3.Prof. Shreela Pareek | | | |

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 Computer Science

Program Name: B.Tech

Course Name: Internship Assessment

Academic Session: 2023-24

Year: 4th

Semester: 7th

Course Code: KCS752

Course Coordinator Name: Harsh Vardhan

## Course Outcomes

| CO No. | Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| | After completion of the course, the student will be able to | | | |
| CO1 | Identify a problem and gather its requirements. | PO1, PO2, PO3, PO6, PO10, PSO1, PSO2 | Apply | C |
| CO2 | Design a solution of the problem using latest tools & techniques. | PO1, PO2, PO3, PO6, PSO1, PSO2 | Apply | P |
| CO3 | Develop a project using latest technology. | PO1, PO2, PO3, PSO1, PSO2 | Create | C |
| CO4 | Develop professional skills and critical thinking to prepare for major project. | PO1, PO2, PO3, PO6, PO10, PSO1, PSO2 | Analyze | P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Harsh Vardhan | *Harsh* | 4.Prof. Yashi Rastogi | *Yashi* |
| 2.Pawan Kumar Pal | | 5.Prof. Arti Sharma | *Arti* |
| 3.Anurag Tiwari | | | |

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 Computer Science

Program Name: B.Tech.  
Course Name: Internship Assessment  
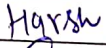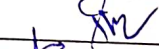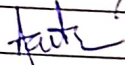Academic Session: 2023-24  
Course Code: KCS752  
Year: 4th  
Semester: 7th  
Course Coordinator Name: Prof. Harsh Vardhan
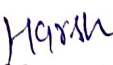
## CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 3 | - | - | 2 | - | - | - | 2 | - | - | 2 | 2 |
| CO2 | 3 | 3 | 3 | - | - | 1 | - | - | - | - | - | - | 2 | 2 |
| CO3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | - | 2 | 3 |
| CO4 | 3 | 3 | 3 | - | - | 2 | - | - | - | 2 | - | - | 3 | 2 |
| PO Target | 3 | 3 | 3 | - | - | 1.67 | - | - | - | 2 | - | - | 2.25 | 2.25 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1. Harsh Vardhan | Harsh | 4. Prof. Yashi Rastogi | Yashi |
| 2. Pawan Kumar Pal | | 5. Prof. Arti Sharma | Arti |
| 3. Anurag Tiwari | | | |

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
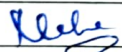
## Department of Computer Science

Program Name: B.Tech    Academic Session: 2023-24    Year:4th    Semester: 7th

Course Name: Project Lab    Course Code: KCS753    Course Coordinator Name: Prof. Neha Shukla

### Course Outcomes

| After completion of the course, the student will be able to | | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO No. | Statement of Course Outcome | | | |
| CO1 | Select and summarize all aspects of real-life problem through information gathering. | PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2 | Understand | C,P |
| CO2 | Apply acquired knowledge to develop a Conceptual model. | PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2 | Apply | C,P |
| CO3 | Analyze the outcome of each phase using various tools and techniques. | PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2 | Analyze | C,P |
| CO4 | Defend the validity of idea or quality of result with the previous data/ result. | PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2 | Evaluate | C,P |
| CO5 | Test the working model and demonstrate the results by publishing the idea/outcome. | PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2 | Create | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Neha Shukla | | 2.Prof. Arti Sharma | |
| 3.Prof. Pawan Kumar Pal | | 4.Prof. Abhishek Goyal | |
| 5.Prof. Pallavi Sharma | | | |

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
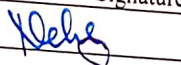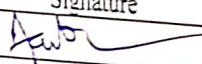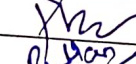## Department of Computer Science

Program Name: B.Tech.
Course Name: Project Lab

Academic Session: 2023-24
Course Code: KCS753

Year: 4th
Semester: 7th
Course Coordinator Name: Prof. Neha Shukla

### CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|--------|----|---|---|---|-----|---|---|---|---|----|-----|-----|----|----|
|        | 1  | 2 | 3 | 4 | 5   | 6 | 7 | 8 | 9 | 10 | 11  | 12  | 1  | 2  |
| CO1    | -  | 3 | 3 | 3 | 3   | 1 | 2 | - | 3 | 2  | 3   | 3   | 3  | 3  |
| CO2    | -  | 3 | 3 | 3 | 2   | 1 | 2 | - | 3 | 2  | 3   | 3   | 3  | 3  |
| CO3    | -  | 3 | 3 | 3 | 2   | 1 | 2 | - | 3 | 2  | 3   | 3   | 3  | 3  |
| CO4    | -  | 3 | 3 | 3 | 2   | 1 | 2 | - | 3 | 2  | 3   | 3   | 3  | 3  |
| CO5    | -  | 3 | 3 | 3 | 2   | 1 | 2 | - | 3 | 2  | 2   | 2   | 3  | 3  |
| PO Target | - | 3 | 3 | 3 | 2.2 | 1 | 2 | - | 3 | 2  | 2.4 | 2.6 | 3  | 3  |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 4. Prof. Neha Shukla                |           | 4. Prof. Arti Sharma                |           |
| 5. Prof. Pawan Kumar Pal            |           | 5. Prof. Abhishek Goyal             |           |
| 6. Prof. Pallavi Sharma             |           |                                     |           |

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech
Course Name: RDAP
**Course Outcomes**

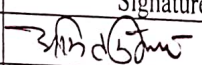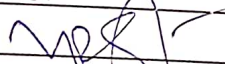Academic Session: 2023-24
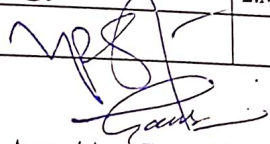Course Code: KHU801

Year: 4th
Semester: 8th
Course Coordinator Name: Prof. Amit Kumar Singh Sanger

| CO No. | After completion of the course, the student will be able to Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Describe the definitions, concepts and components of Rural Development | PO6, PO8, PO10, PO12 | Understand | C |
| CO2 | Explain the importance, structure, significance, resources of Indian rural economy. | PO6, PO8, PO9, PO10, PO12 | Understand | F, C |
| CO3 | Identify Rural development programmes and their impact. | PO6, PO7, PO8, PO9, PO10, PO12 | Understand | F, C |
| CO4 | Explain the use of different methods of human resource planning | PO6, PO8, PO9, PO10, PO12 | Understand | F, C |
| CO5 | Acquire knowledge about rural entrepreneurship. | PO6, PO8, PO10, PO12 | Understand | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Mr. Amit Kumar Singh Sanger | | 2.Mr. Pardeep Tyagi | |
| 3.Prof. Vinay Pratap Singh | | | |

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

Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addl. HoD    Signature of HoD

## Department of Computer Science

**Program Name:** B.Tech    **Academic Session:** 2023-24    **Year:** 4th    **Semester:** 8th
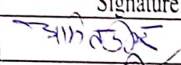
**Course Name:** RDAP    **Course Code:** KHU801    **Course Coordinator Name:** Prof. Amit Kumar Singh Sanger
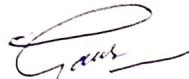
### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Amit Kumar Singh Sanger | | 2.Prof. Pardeep Tyagi | |
| 3.Prof. Vinay Pratap Singh | | | |
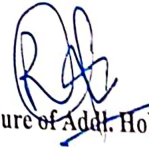
Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addl. HoD    Signature of HoD

**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).

❖ If there is no correl...

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech
Course Name: Quality Management
Course Outcomes

Academic Session: 2023-24

Course Code: KOE085

Year: 4th

Semester: 8th

Course Coordinator Name: Prof. Akanksha

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Understand the quality concept and its components. | PO6, PO8, PO9, PO10, PO11, PO12 | Understand | C |
| CO2 | Understand the concepts of quality management and performance excellence in organization. | PO8, PO9, PO10, PO12 | Understand | C |
| CO3 | Apply the several techniques and quality management tools. | PO5, PO10, PO11 | Apply | C, P |
| CO4 | Analyze the defects, reliability and maintainability after the interpretation of test results. | PO2, PO3, PO9, PO10, PO11, PO12 | Analyze | C, P |
| CO5 | Understand the quality system certification process. | PO8, PO10 | Understand | C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akanksha | | 2.Prof. Shreela | |
| 3.Dr. Kalpana Sagar | | | |

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.
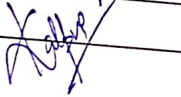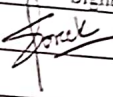
❖ If there is no ...

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech
Course Name: Quality Management
Academic Session: 2023-24
Course Code: KOE085
Year: 4th
Semester: 8th
Course Coordinator Name: Prof. Akanksha

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Akanksha | | | |
| 3.Dr. Kalpana Sagar | | 2.Prof. Shreela | |

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).

❖ If there is no correlation...

# KIET Group of Institutions, Delhi – NCR, Ghaziabad

## Department of Computer Science

Program Name: B.Tech
Course Name: Digital and Social Media Marketing   Course Code: KOE094
Academic Session: 2023-24
Year: 4th     Semester: 8th
Course Coordinator Name: Prof. Pallavi Sharma

### Course Outcomes

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|---|---|---|---|---|
| CO1 | Acquire the knowledge about the Digital Marketing, the various channels through which it operates and it's role in marketing strategy. | PO6, PO10, PO12 | Understand | F,C |
| CO2 | Gain understanding of various social media platforms and the creation of blogs. | PO6, PO9, PO10, PO12 | Apply | C,P |
| CO3 | Assess the best practices in digital marketing field across various markets and gain knowledge of various digital marketing tool. | PO5, PO6, PO9, PO10, PO12 | Understand | F,C |
| CO4 | Formulate Digital marketing Strategies for an organization. | PO5, PO6, PO9, PO10, PO12 | Apply | C,P |
| CO5 | Analyze the privacy, security, content and ethicality issues associated with digital and social media platforms. | PO6, PO9, PO10, PO12 | Understand | F,C |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Pallavi Sharma | *Pallav* | | |
| 3.Prof. Umnah | *Umnah* | 2.Prof. Rahul Kumar | *signature* |

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.

❖ If there is no con...

Signature of Course Coordinator    Assoc./ Asst. Head DOC    Signature of Addl. HoD    Signature of HoD

## Department of Computer Science

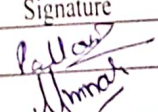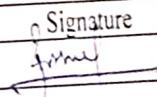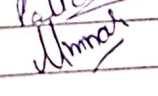**Program Name:** B.Tech    **Academic Session:** 2023-24    **Year:** 4th    **Semester:** 8th

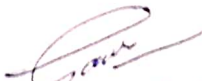**Course Name:** Digital and Social Media Marketing    **Course Code:** KOE094    **Course Coordinator Name:** Prof. Pallavi Sharma

### CO - PO/PSO/APO Matrix

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

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Pallavi Sharma | | 2.Prof. Rahul Kumar | |
| 3.Prof. Umnah | | | |

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 Computer Science

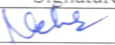Program Name: B.Tech    Academic Session: 2023-24    Year:4th    Semester: 8th
Course Name: Project    Course Code: KCS851    Course Coordinator Name: Prof. Neha Shukla
**Course Outcomes**

| CO No. | After completion of the course, the student will be able to — Statement of Course Outcome | Relevant POs/ PSOs | Revised Bloom's Level (BL) | Knowledge Category (KC) |
|--------|---------------------------------------------------------------------------|--------------------|---------------------------|-------------------------|
| CO1 | Identify real-life problems through effective information gathering for comprehensive understanding. | PO1, PO2, PO3, PO4, PO5, PO7, PO9, PO10, PO11, PO12, PSO1 | Understand | C |
| CO2 | Apply diverse insights collaboratively to develop a robust conceptual problem-solving model. | PO1, PO2, PO3, PO4, PO7, PO12, PSO1 | Apply | C,P |
| CO3 | Develop a prototype/experimental set-up necessary to complete the project. | PO1, PO2, PO3, PO4, PO5, PO12, PSO1 | Create | C,P |
| CO4 | Examine acquired results thoroughly, drawing meaningful conclusions through in-depth discussion and comprehensive analysis. | PO1, PO2, PO3, PO4, PO12, PSO1 | Analyze | C,P |
| CO5 | Demonstrate effective teamwork, presentation, and communication skills among team members. | PO8, PO9, PO10, PO11, PO12, PSO1 | Apply | C,P |
| CO6 | Compile experimental information to publish in journals/conference/Patent. | PO1, PO2, PO4, PO8, PO12, PSO1, PSO2 | Create | C,P |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|-------------------------------------|-----------|-------------------------------------|-----------|
| 1.Prof. Neha Shukla | | | |

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
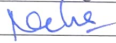## Department of Computer Science

Program Name: B.Tech
Course Name: Project

Academic Session: 2023-24
Course Code: KCS851

Year:4th                 Semester: 8th
Course Coordinator Name: Prof. Neha Shukla

## CO - PO/PSO/APO Matrix

| CO No. | Programme Outcome (PO) | | | | | | | | | | | | PSO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| CO1 | 3 | 3 | 3 | 3 | 2 | - | 2 | - | 3 | 2 | 2 | 3 | 3 | - |
| CO2 | 3 | 3 | 3 | 3 | - | - | 3 | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | - |
| CO6 | 2 | 3 | - | 3 | - | - | - | 2 | - | - | - | 3 | 3 | 3 |
| PO Target | 2.80 | 3 | 3 | 3 | 2.50 | - | 2.50 | 2.50 | 3 | 2.50 | 2.50 | 3 | 3 | 3 |

| Faculty Members Teaching the Course | Signature | Faculty Members Teaching the Course | Signature |
|---|---|---|---|
| 1.Prof. Neha Shukla | | | |
| | | | |

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.

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