

COURSE OUTCOMES

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

Year of study: 2019-20

| On completion of this course, the students will be able to | |
|---|--|
| KCE 401.1 | learn the properties and characteristics of various building materials like stone, bricks, cement, cement concrete and their applications. |
| KCE 401.2 | understand the properties and characteristics of materials used in buildings like plastics, paints, ferrous metals and glass. |
| KCE 401.3 | understand the principles and methods of building construction and functional efficiency of buildings and their applications. |
| KCE 401.4 | understand different types of floors in building construction and their applications in construction. |
| KCE 401.5 | learn the various types of doors, windows and ventilators. |
| KCE 401.6 | learn water supply and sanitary fittings in buildings and their applications. |

Mapping of Course Outcome and Program Outcome

| CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| KCE 401.1 | 3 | - | - | - | - | 3 | 1 | - | - | - | - | 2 |
| KCE 401.2 | 3 | - | - | - | - | 3 | 1 | - | - | - | - | 2 |
| KCE 401.3 | 3 | 1 | 1 | - | - | 3 | - | 2 | - | - | - | 2 |
| KCE 401.4 | 3 | - | - | - | - | 3 | - | - | - | - | - | 2 |
| KCE 401.5 | 2 | - | - | - | - | 2 | - | - | - | - | - | 1 |
| KCE 401.6 | 2 | - | - | - | - | 2 | - | - | - | - | - | 1 |
| Average | 2.67 | 1.00 | 1.00 | - | - | 2.67 | 1.00 | 2.00 | - | - | - | 1.67 |

Mapping of Course Outcome and Program Specific Outcome

| CO | PSO 1 | PSO 2 |
|------------------|--------------|--------------|
| KCE 401.1 | 3 | 2 |
| KCE 401.2 | 3 | 2 |
| KCE 401.3 | 3 | 2 |
| KCE 401.4 | 3 | 2 |
| KCE 401.5 | 2 | 1 |
| KCE 401.6 | 2 | 1 |
| Average | 2.67 | 1.67 |

COURSE OUTCOMES

Course Name: KCE402: Introduction to Solid Mechanics

Year of study: 2019-20

| On completion of this course, the students will be able to | |
|---|--|
| KCE 402.1 | On completion of this course, the students will be able to analyse stress and strain of composite bars, bars of varying cross section, temperature stresses, principal stress and strain |
| KCE 402.2 | On completion of this course, the students will be able to analyse various beams with different loadings to draw Shear Force and Bending Moment Diagrams |
| KCE 402.3 | On completion of this course, the students will be able to design beam section for bending stresses and shear stress distribution |
| KCE 402.4 | On completion of this course, the students will be able to apply the concept of torsion for hollow and circular shafts and combined loading of bending and torsion. |
| KCE 402.5 | On completion of this course, the students will be able to apply various methods to calculate slope and deflection for determinate beams and buckling of columns and struts. |
| KCE 402.6 | On completion of this course, the students will be able to analyse the behaviour of springs, thin and thick cylinders and spheres |

Mapping of Course Outcome and Program Outcome

| CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| KCE 402.1 | 3 | 3 | 3 | - | 1 | 2 | - | - | 1 | - | - | 2 |
| KCE 402.2 | 3 | 3 | 3 | - | 1 | 3 | - | - | 1 | - | - | 3 |
| KCE 402.3 | 3 | 3 | 3 | - | - | 2 | - | - | - | - | - | 2 |
| KCE 402.4 | 2 | 2 | 2 | - | - | 2 | - | - | - | - | - | 2 |
| KCE 402.5 | 3 | 3 | 3 | - | - | 2 | - | - | - | - | - | 2 |
| KCE 402.6 | 2 | 2 | 3 | - | - | 2 | - | - | - | - | - | 2 |
| Average | 2.67 | 2.67 | 2.83 | - | 1 | 2.17 | - | - | 1 | - | - | 2.17 |

Mapping of Course Outcome and Program Specific Outcome

| CO | PSO 1 | PSO 2 |
|------------------|--------------|--------------|
| KCE 402.1 | 2 | 2 |
| KCE 402.2 | 3 | 3 |

| | | |
|------------------|-------------|-------------|
| KCE 402.3 | 2 | 2 |
| KCE 402.4 | 2 | 2 |
| KCE 402.5 | 2 | 2 |
| KCE 402.6 | 2 | 2 |
| Average | 2.17 | 2.17 |

COURSE OUTCOMES

Course Name: KCE403: Hydraulic Engineering and Machines Year of study: 2019-20

| On completion of this course, the students will be able to | |
|---|---|
| KCE 403.1 | On completion of this course, the students will be able to differentiate between open channel and pipe flow by understanding the concepts of open channel flow |
| KCE 403.2 | On completion of this course, the students will analyse geometrical parameters of an open channel & evaluate efficient channel sections for different conditions. |
| KCE 403.3 | On completion of this course, the students will analyse the nature of flow and flow profiles using concept of specific energy and GVF equation |
| KCE 403.4 | On completion of this course, the students will understand and apply the principle of hydraulic jump to analyse various open channel surges and its applications |
| KCE 403.5 | On completion of this course, the students will understand and apply the working principle of pumps and their characteristic curves |
| KCE 403.6 | On completion of this course, the students will analyse the working of turbines and evaluate various performance metrics |

Mapping of Course Outcome and Program Outcome

| CO | PO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| KCE 403.1 | | 2 | 1 | - | - | - | 1 | - | - | - | - | - | 1 |
| KCE 403.2 | | 3 | 3 | - | 1 | - | 2 | - | - | - | - | - | 2 |
| KCE 403.3 | | 3 | 3 | 1 | 1 | - | 2 | - | - | - | - | - | 2 |
| KCE 403.4 | | 3 | 3 | - | 1 | - | 3 | - | - | - | - | - | 2 |
| KCE 403.5 | | 3 | 3 | - | - | - | 3 | - | - | - | - | - | 2 |
| KCE 403.6 | | 3 | 3 | - | - | - | 3 | - | - | - | - | - | 2 |

| | | | | | | | | | | | | |
|----------------|-------------|-------------|-------------|-------------|----------|-------------|----------|----------|----------|----------|----------|-------------|
| Average | 2.83 | 2.83 | 1.00 | 1.00 | - | 2.17 | - | - | - | - | - | 1.83 |
|----------------|-------------|-------------|-------------|-------------|----------|-------------|----------|----------|----------|----------|----------|-------------|

Mapping of Course Outcome and Program Specific Outcome

| CO | PSO | PSO 1 | PSO 2 |
|------------------|------------|--------------|--------------|
| KCE 403.1 | | 3 | 3 |
| KCE 403.2 | | 3 | 3 |
| KCE 403.3 | | 3 | 3 |
| KCE 403.4 | | 3 | 3 |
| KCE 403.5 | | 3 | 3 |
| KCE 403.6 | | 2 | 2 |
| Average | | 2.83 | 2.83 |

COURSE OUTCOMES

Course Name: KCE-451: Material Testing Lab

Year of study: 2019-20

| On completion of this Lab, the students will be able to | |
|---|---|
| KCE 451.1 | Test various properties of cement. |
| KCE 451.2 | Test properties of coarse and fine aggregates |
| KCE 451.3 | Test water absorption, dimension tolerances and compressive strength of bricks. |

Mapping of Course Outcome and Program Outcome

| PO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|------------------|-------------|-------------|------|------|------|-------------|-------------|-------------|-------------|------|------|-------------|
| KCE 451.1 | 3 | 2 | - | - | - | 2 | 1 | 1 | 1 | - | - | 2 |
| KCE 451.2 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| KCE 451.3 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| Average | 2.00 | 2.00 | - | - | - | 2.67 | 1.00 | 1.67 | 1.00 | - | - | 2.00 |

Mapping of Course Outcome and Program Specific Outcome

| PSO CO | PSO1 | PSO2 |
|------------------|----------|----------|
| KCE 451.1 | 2 | 2 |
| KCE 451.2 | 2 | 2 |
| KCE 451.3 | 2 | 2 |
| Average | 2 | 2 |

COURSE OUTCOMES

Course Name: KCE-452: Solid Mechanics Lab

Year of study: 2019-

20

| On completion of this Lab, the students will be able to | |
|---|---|
| KCE 452.1 | To determine the tension test on Mild Steel |
| KCE 452.2 | To determine the Hardness Test (Brinell's and Rockwell) of different metals |
| KCE 452.3 | To determine the Impact test (Charpy and IZOD) |

Mapping of Course Outcome and Program Outcome

| PO CO | PO 1 | PO 2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO 8 | PO9 | PO10 | PO11 | PO12 |
|------------------|-------------|-------------|-----|-----|-----|-------------|-------------|-------------|-------------|------|------|-------------|
| KCE 452.1 | 3 | 2 | - | - | - | 2 | 1 | 1 | 1 | - | - | 2 |
| KCE 452.2 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| KCE 452.3 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| Average | 3.00 | 2.00 | - | - | - | 2.67 | 1.00 | 1.67 | 1.00 | - | - | 2.00 |

Mapping of Course Outcome and Program Specific Outcome

| PSO CO | PSO 1 | PSO 2 |
|------------------|----------|----------|
| KCE 452.1 | 2 | 2 |
| KCE 452.2 | 2 | 2 |
| KCE 452.3 | 2 | 2 |
| Average | 2 | 2 |

COURSE OUTCOMES

Course Name: KCE-453: Hydraulics & Hydraulic Machine Lab Year of study: 2019-20

| | | | | | | | | | | | | |
|--|---|-------------|------------------|-------------|--------------|-------------|--------------|-------------|--------------------|-------------|-------------|-------------|
| On completion of this Lab, the students will be able to | | | | | | | | | | | | |
| KCE 453.1 | determine Manning coefficient & the velocity distribution in an open channel. | | | | | | | | | | | |
| KCE 453.2 | analyse experimentally the study of flow characteristics over a hump & the study of flow characteristics through a horizontal contraction in a rectangular channel. | | | | | | | | | | | |
| KCE 453.3 | analyse experimentally flow characteristics of a free hydraulic jump & study characteristics of pumps and turbines. | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| KCE 453.1 | 2 | 2 | - | 2 | - | 1 | - | 1 | 2 | - | - | 2 |
| KCE 453.2 | 3 | 3 | - | 2 | - | 1 | - | 1 | 2 | - | - | 2 |
| KCE 453.3 | 3 | 3 | - | 2 | - | 2 | - | 1 | 2 | - | - | 1 |
| Average | 2.67 | 2.67 | - | 2.00 | - | 1.33 | - | 1.00 | 2.00 | - | - | 1.67 |
| Mapping of Course Program Outcome | | | CO | | PSO 1 | | PSO 2 | | Outcome and | | | |
| | | | KCE 453.1 | | 2 | | 1 | | | | | |
| | | | KCE 453.2 | | 3 | | 2 | | Outcome and | | | |
| | | | KCE 453.3 | | 2 | | 2 | | | | | |
| | | | Average | | 2.33 | | 1.67 | | | | | |
| Mapping of Course Program Specific | | | | | | | | | | | | |

COURSE OUTCOMES

Course Name: KOE043: Energy Science & Engg.

Year of study: 2019-20

| On completion of this course, the students will be able to | |
|--|--|
| KOE043.1 | Understand various energy and its usage. |
| KOE043.2 | Understand the fundamental forces in universe aspects of nuclear energy |
| KOE043.3 | Estimate the solar energy, Utilization of it, Principles involved in solar energy collection and conversion of it to electricity generation. |
| KOE043.4 | Demonstrate the generation of energy from various Conventional and Non-Conventional sources of energy. |
| KOE043.5 | Illustrate ocean energy and explain the operational methods of their utilization and acquire the knowledge on Geothermal energy. |
| KOE043.6 | Explore the concepts involved in systems and synthesis by studying its components, types and performance. |

Mapping of Course Outcome and Program Outcome

| CO | PO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|-----------------|----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| KOE043.1 | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |
| KOE043.2 | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |
| KOE043.3 | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |
| KOE043.4 | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |
| KOE043.5 | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |
| KOE043.6 | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |
| Average | | 2 | 2 | 2 | 2 | - | 1 | 2 | - | - | - | - | - |

Mapping of Course Outcome and Program Specific Outcome

| CO | PSO | PSO 1 | PSO 2 |
|-----------------|-----|-------|-------|
| KOE043.1 | | - | - |
| KOE043.2 | | - | - |
| KOE043.3 | | - | - |
| KOE043.4 | | - | - |
| KOE043.5 | | - | - |
| KOE043.6 | | - | - |
| Average | | - | - |

COURSE OUTCOMES

Course Name: KVE401: Universal Human Values

Year of study: 2019-20

| On completion of this course, the students will be able to | |
|---|---|
| KVE401.1 | Understand the need, concept and content of value-education in individual's life and modifies their aspirations for happiness & prosperity. |
| KVE401.2 | Comprehend the term self-exploration and its application for self-evaluation and development. |
| KVE401.3 | Reconstruct the concepts about different values & discriminate between them. |
| KVE401.4 | Analyze the concept of co-existence & evaluate the program to ensure self regulation. |
| KVE401.5 | Identify the holistic perception of harmony at level of self, family, society, nature and explain it by various examples. |
| KVE401.6 | Apply professional ethics in their future profession & contribute for making a value based society. |

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
| CO | | | | | | | | | | | | |
| KVE401.1 | | | | | | 3 | 3 | 3 | 3 | 2 | | 3 |
| KVE401.2 | | | | | | 3 | 3 | 3 | 3 | 2 | | 3 |
| KVE401.3 | | | | | | 3 | 3 | 3 | 2 | 2 | | 3 |
| KVE401.4 | | | | | | 3 | 3 | 3 | 2 | 2 | | 3 |
| KVE401.5 | | | | | | 3 | 3 | 3 | 3 | 2 | | 3 |
| KVE401.6 | | | | | | 3 | 3 | 3 | 3 | 2 | | 3 |
| Average | | | | | | 3 | 3 | 3 | 2.67 | 2 | - | 3.00 |

Mapping of Course Outcome and Program Outcome

Course Outcome and Program Specific Outcome

| CO | PSO | PSO 1 | PSO 2 |
|-----------------|------------|--------------|--------------|
| KVE401.1 | | 3 | 3 |
| KVE401.2 | | 3 | 3 |
| KVE401.3 | | 2 | 2 |
| KVE401.4 | | 2 | 2 |
| KVE401.5 | | 2 | 2 |
| KVE401.6 | | 2 | 2 |
| Average | | 2.33 | 2.33 |