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KUPPAM ENGINEERING COLLEGE

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(Recognised by UGC(f) & 12(b))

KUPPAM - 517 425, Chittoor Dist., A.P. ☎: 08570 - 256966 (O), 256977 (F)

principal@kec.ac.in

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES

FOR

R15 REGULATIONS

DEPARTMENT OF CIVIL ENGINEERING

KUPPAM ENGINEERING COLLEGE

KES NAGAE, P.B.NATHAM

KUPPAM-517425



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DEPARTMENT OF CIVIL ENGINEERING

Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A56101

Year & Sem: I/I

Subject Name: Engineering Physics

Course Outcomes

After completion of this course the students will be able to

- CO1** Identify the nature of light.
- CO2** Outline the different types of crystals and ultrasonic wave.
- CO3** Explain the behavior of microscopic particles.
- CO4** Classify the semiconductors and magnetic materials.
- CO5** Describe the features of superconductors and nanomaterials.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	2	2	-	-	-	-	-	-	-	-	-	-
CO 2	3	1	-	-	-	-	-	-	-	-	-	-
CO 3	1	2	-	-	-	-	-	-	-	-	-	-
CO 4	3	2	-	-	-	-	-	-	-	-	-	-
CO 5	3	3	-	-	-	-	-	-	-	-	-	-
AVG	2.4	2	-	-	-	-	-	-	-	-	-	-

V. S. S. S.
Program Co-ordinator

A. R. M.
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DEPARTMENT OF CIVIL ENGINEERING

Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code:

Year & Sem: I/I

Subject Name: Engineering Drawing

Course Outcomes

After completion of this course the students will be able to

- CO1** Understand the significance of engineering drawing. Draw different curves such as cycloid, involute and hyperbola.
- CO2** Understand the meaning of projection. Know how to draw the projections of points, lines and planes.
- CO3** Understand the procedure to draw projection of solids. Differentiate between rotational method and Auxiliary view method
- CO4** Understand different sectional views of regular solids. Obtain the true shapes of the sections of prism.
- CO5** Understand the meaning of development of surfaces. Draw the development of regular solids such as prism, cylinder, pyramid and cone.

CO-PO and PSO Mapping Correlation

PO / 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	PSO1	PSO2
CO 1	3	1	-	-	-	-	-	-	-	-	-	1	1	-
CO 2	2	1	-	-	-	-	-	-	-	-	-	1	1	2
CO 3	2	1	1	-	-	-	-	-	-	-	-	1	1	-
CO 4	2	1	1	-	1	-	-	-	-	-	-	2	2	2
CO 5	2	2	2	-	1	-	-	-	-	-	-	2	1	-
AVG	2.2	1.2	1.33	-	1	-	-	-	-	-	-	1.4	1.2	2

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DEPARTMENT OF CIVIL ENGINEERING

Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A05102

Year & Sem: I/I

Subject Name: Computer Programming Lab

Course Outcomes

After completion of this course the students will be able to

- CO1** Implement and test simple C programs using arithmetic operators in C language
- CO2** Develop and test simple C programs using control structures in C language
- CO3** Construct some C programs on arrays, pointers and functions in C Language
- CO4** Construct some C programs on arrays, pointers and functions in C Language
- CO5** Develop basic programs on Structures and unions in C language

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	3	2	2	-	-	-	-	-	-	-	-	-
CO 2	2	2	3	-	-	-	-	-	-	-	-	-
CO 3	3	3	2	-	-	-	-	-	-	-	-	-
CO 4	3	2	2	-	-	-	-	-	-	-	-	-
CO 5	3	2	3	-	-	-	-	-	-	-	-	-
AVG	2.8	2.2	2.4	-	-	-	-	-	-	-	-	-

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DEPARTMENT OF CIVIL ENGINEERING

Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A56102

Year & Sem: I/I

Subject Name: Engineering Physics lab

Course outcomes


After completion of this course the students will be able to

- CO1** Determine the wave lengths of various colors.
- CO2** Measure the energy gap of the semiconductor diode
- CO3** Analyze the magnetic field along the current carrying coils.
- CO4** Determine the dispersive power of the prism.
- CO5** Determine the radius of curvature of a plane convex lens by using newton's rings.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO1	PSO2
CO 1	3	2	-	-	-	-	-	-	-	-	-	-	3	2
CO 2	2	2	-	-	-	-	-	-	-	-	-	-	2	2
CO 3	2	2	-	-	-	-	-	-	-	-	-	-	2	2
CO 4	1	1	-	-	-	-	-	-	-	-	-	-	1	1
CO 5	2	1	-	-	-	-	-	-	-	-	-	-	2	1
AVG	2	1.6	-	-	-	-	-	-	-	-	-	-	2	1.6

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: **15A52102**

Year & Sem:I/I

Subject Name: **English Language Communication skills Lab**

Course Outcomes

After completion of this course the students will be able to

- CO1** Make use of pronunciation and correct accent
- CO2** Apply the stress pattern and voice modulation
- CO3** Improves participation in just a minute and roleplay
- CO4** Develop interview skills
- CO5** Illustrate fluently a Review of book or movie efficiently

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO11	PO12
CO 1	-	-	-	-	-	-	-	-	1	3	-	1
CO 2	-	-	-	-	-	-	-	-	-	3	-	-
CO 3	-	-	-	-	-	-	-	-	2	3	-	-
CO 4	-	-	-	-	-	-	-	-	1	3	-	2
CO 5	-	-	-	-	-	-	-	-	3	3	-	1
AVG	-	-	-	-	-	-	-	-	1.75	3	-	1.33

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: **15A52201**

Year & Sem: I/II

Subject Name: **English for Professional Communication**

Course Outcomes

After completion of this course the students will be able to

- CO1** Participate in Argument and Discussion
- CO2** Write Essays Correctly
- CO3** Participate in Elocution with correct accent
- CO4** Comprehend advantages & disadvantages tourism
- CO5** Draft Curriculum vitae and Resume

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	-	-	-	-	-	-	-	-	3	3	-	3
CO 2	-	-	-	-	-	-	-	-	2	3	-	2
CO 3	-	-	-	-	-	-	-	-	3	3	1	3
CO 4	-	-	-	-	-	-	-	-	2	3	-	2
CO 5	-	-	-	-	-	-	-	-	3	3	-	3
AVG	-	-	-	-	-	-	-	-	2.6	3	1	2.6

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A54201

Year & Sem: I/II

Subject Name: Mathematics-II

Course Outcomes


After completion of this course the students will be able to

- CO1 Solve Differential Equations using Laplace Transform.
- CO2 Find Fourier Coefficients and Fourier Expansion of given function.
- CO3 Determine Fourier transform, Fourier sine and Cosine Transform of a function.
- CO4 Apply Partial differential Equations to solve Engineering Problems.
- CO5 Solve Difference Equations using Z-Transform.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	3	2	-	-	-	-	-	-	-	-	-	-
CO 2	3	-	-	-	-	-	-	-	-	-	-	-
CO 3	1	-	-	-	-	-	-	-	-	-	-	-
CO 4	3	2	-	-	-	-	-	-	-	-	-	-
CO 5	2	-	-	-	-	-	-	-	-	-	-	-
AVG	2.4	2	-	-	-	-	-	-	-	-	-	-


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code:

Year & Sem: I/II

Subject Name: Engineering Mechanics

Course Outcomes

After completion of this course the students will be able to

- CO1** students Will be to solve resultants of any force system
- CO2** students will be able Solve the mechanics problems associated with friction forces
- CO3** Students will be able to obtain the centroid, first moment and second moment of an area
- CO4** Students will be able to Describe the motion of a particle in terms of its position, velocity and acceleration
- CO5** Students will be able to Analyze the forces causing the motion of a particle

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	1
CO 2	3	2	-	-	-	-	-	-	-	-	-	-	-	1
CO 3	3	2	-	-	-	-	-	-	-	-	-	-	-	1
CO 4	3	2	-	-	-	-	-	-	-	-	-	-	-	1
CO 5	3	2	-	-	-	-	-	-	-	-	-	-	-	1
AVG	3	2	-	-	-	-	-	-	-	-	-	-	-	1

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DEPARTMENT OF CIVIL ENGINEERING

Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A51101

Year & Sem: I/II

Subject Name: Engineering Chemistry

Course Outcomes

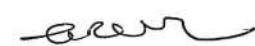
After completion of this course the students will be able to

- CO1** Appraise the quality and utility of suitable water for industrial and domestic.
- CO2** Difference between the thermo plastic and thermo setting.
- CO3** Classify the types of batteries and apply the methods to prevent the corrosion.
- CO4** Categorize the types and properties of fuel.
- CO5** Infer the chemistry of engineering materials.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	3	1	1	-	-	-	1	-	-	-	-	-
CO 2	2	-	1	-	-	-	1	-	-	-	-	-
CO 3	2	1	1	-	-	-	1	-	-	-	-	-
CO 4	3	1	-	-	-	-	1	-	-	-	-	-
CO 5	2	-	1	-	-	-	-	-	-	-	-	-
AVG	2.4	1	1	-	-	-	1	-	-	-	-	-

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01101

Year & Sem: I/II

Subject Name: Environmental Studies

Course Outcomes

After completion of this course the students will be able to

- CO1** Appraise knowledge regarding environment and its components.
- CO2** Distinguish the types of biodiversity and ecosystems.
- CO3** Categorize different types of pollution and their control measures.
- CO4** Analyze global environmental problems.
- CO5** Ability to describe value education.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	3	-	-	-	-	-	-	-	-	-	-	-
CO 2	-	-	-	-	-	-	3	-	-	-	-	-
CO 3	2	-	-	-	-	-	3	-	-	-	-	1
CO 4	-	2	-	-	-	-	-	-	-	-	-	-
CO 5	-	-	-	-	-	2	-	-	-	-	-	3
AVG	2.5	2	-	-	-	2	3	-	-	-	-	2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code:

Year & Sem: I/II

Subject Name: **Applied Mechanics lab**

Course Outcomes

After completion of this course the students will be able to

- CO1** students are able to verify the polygons law
- CO2** Able to find the support reactions experimentally
- CO3** able to verify the principle of moment with different equipment
- CO4** able to estimate the amount of acceleration due to gravity of various bodies
- CO5** Able to understand the gear arrangement and its Efficiency Calculations

CO-PO and PSO Mapping Correlation

PO /CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO1	PSO2
CO 1	2	2	1	-	-	-	-	-	-	-	-	-	1	1
CO 2	2	2	1	-	-	-	-	-	-	-	-	-	1	1
CO 3	2	2	1	-	-	-	-	-	-	-	-	-	1	1
CO 4	2	2	1	-	-	-	-	-	-	-	-	-	1	1
CO 5	2	2	1	-	-	-	-	-	-	-	-	-	1	1
AVG	2	2	1	-	-	-	-	-	-	-	-	-	1	1

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: **15A51102**

Year & Sem: I/II

Subject Name: **Engineering Chemistry Lab**

Course Outcomes

After completion of this course the students will be able to

- CO1** Identify the types of hardness, acidity and alkalinity in water treatment.
- CO2** Distinguish the types of reaction.
- CO3** Analyze the viscosity of different types of oils.
- CO4** Estimate the amount of substance using potentiometer and conduct meter.
- CO5** Determine the Ph value of different solutions.

CO-PO and PSO Mapping Correlation

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
CO 1	2	1	-	-	-	-	-	-	-	-	-	-
CO 2	2	2	-	-	-	-	-	-	-	-	-	-
CO 3	1	3	-	-	-	-	-	-	-	-	-	-
CO 4	2	1	-	-	-	-	-	-	-	-	-	-
CO 5	2	1	-	-	-	-	-	-	-	-	-	-
AVG	1.8	1.6	-	-	-	-	-	-	-	-	-	-

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A99201

Year & Sem: I/II

Subject Name: Engineering & IT Workshop

Course Outcomes

After completion of this course the students will be able to

- CO1** Study and practice on machine tools and their operations
- CO2** Practice on manufacturing of components using workshop trades including carpentry
- CO3** Practice on manufacturing of component using workshop trades includes foundry and welding
- CO4** Identify various hardware components in computer system
- CO5** Install operating system in computer machine

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO12	PSO 1	PSO 2
CO 1	3	-	2	-	2	-	-	-	-	-	-	-	-	-
CO 2	2	1	-	-	-	-	-	-	-	-	-	-	-	-
CO 3	2	1	1	-	-	-	-	-	-	-	-	-	-	-
CO 4	3	2	1	-	1	1	-	-	-	-	-	1	2	2
CO 5	3	2	1	-	1	1	-	-	-	-	-	2	2	2
AVG	2.6	1.5	1.25	-	1.33	1	-	-	-	-	-	1.5	2	2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A99301

Year & Sem:II/I

Subject Name: Electrical & Mechanical Technology

Course Outcomes

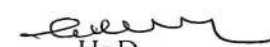
After completion of this course the students will be able to

- CO1** Analyze the basic principles of DC and AC circuits.
- CO2** Classify DC generators and motors
- CO3** Relate working principles of transformers, induction motors and alternators.
- CO4** Illustrate the basic welding processes, steam engines and turbines, IC engines and air compressors
- CO5** Explain basic principles of refrigeration and air-conditioning systems.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	3	-	-	-	1	-	-	-	-	-	-	-	-
CO 2	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO 3	2	1	-	-	-	-	-	-	-	-	-	-	-	-
CO 4	2	-	-	-	-	1	1	-	-	-	-	-	-	-
CO 5	2	-	-	-	-	1	1	-	-	-	-	1	-	1
AVG	2	2.33	-	-	-	1	1	-	-	-	-	1	-	1

V.S. 
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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A54301

Year & Sem: II/I

Subject Name: Mathematics - III

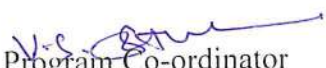
Course Outcomes


After completion of this course the students will be able to

- CO1** Solving systems of linear equations, using technology to facilitate row reduction determine the rank, Eigen values and eigenvectors
- CO2** Apply numerical methods to solve algebraic and transcendental equations.
- CO3** Derive interpolating polynomials using interpolation formulae.
- CO4** Understand by least square method of fitting trend in a time series.
- CO5** Solve differential and integral equations numerically.

CO-PO and PSO Mapping Correlation

PO / 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
CO 1	3	2	-	-	-	-	-	-	-	-	-	-
CO 2	3	1	-	-	-	-	-	-	-	-	-	-
CO 3	2	2	-	-	-	-	-	-	-	-	-	-
CO 4	3	2	-	-	-	-	-	-	-	-	-	-
CO 5	2	2	-	-	-	-	-	-	-	-	-	-
AVG	2.6	1.8	-	-	-	-	-	-	-	-	-	-


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A52101

Year & Sem: I/I

Subject Name: Functional English

Course Outcomes

After completion of this course the students will be able to

- CO1** Compose letters and writing paragraphs
- CO2** Could analyze graphs and charts
- CO3** Compose SMS and writing E-mails
- CO4** Participate effectively in GD and debate
- CO5** Comprehend and write report according to the requirement

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	-	-	-	-	-	-	-	-	3	3	-	3
CO 2	-	-	-	-	-	-	-	-	2	3	1	2
CO 3	-	-	-	-	-	-	-	-	2	3	-	3
CO 4	-	-	-	-	-	-	-	-	2	3	-	2
CO 5	-	-	-	-	-	-	-	-	3	3	-	3
AVG	-	-	-	-	-	-	-	-	2.4	3	1	2.6

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A54101

Year & Sem: I/I

Subject Name: Mathematics-I

Course Outcomes

After completion of this course the students will be able to

- CO1** Apply standard methods for solving First Order Differential Equations.
- CO2** Identify Second Order Linear Differential Equations with variable coefficients.
- CO3** Apply partial Derivatives to study Maxima and Minima of function of two and three variables.
- CO4** Find the area and Volume of given region.
- CO5** Apply the concepts of line, surface and volume integrals.

CO-PO and PSO Mapping Correlation

PO /CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	3	3	-	-	-	-	-	-	-	-	-	-
CO 2	2	-	-	-	-	-	-	-	-	-	-	-
CO 3	2	-	-	-	-	-	-	-	-	-	-	-
CO 4	3	2	-	-	-	-	-	-	-	-	-	-
CO 5	3	-	-	-	-	-	-	-	-	-	-	-
AVG	2.6	2.5	-	-	-	-	-	-	-	-	-	-

N. S. Sathya
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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A05101

Year & Sem: I/I

Subject Name: Computer Programming

Course Outcomes

After completion of this course the students will be able to

- CO1** Understand the concept of data types, operators and expressions in C
- CO2** Compare and classify control statements and to understand arrays in C language
- CO3** Acquire knowledge on usage of pointers and functions
- CO4** Develop basic programs on structures and unions
- CO5** Acquire knowledge on files and pre-processors

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO1	PSO2
CO 1	3	2	2	-	-	-	-	-	-	-	1	-	3	-
CO 2	2	2	3	-	-	-	-	-	-	-	2	1	3	1
CO 3	3	3	2	-	-	-	-	-	-	-	-	-	2	-
CO 4	3	2	2	-	-	-	-	-	-	-	2	1	2	1
CO 5	3	2	3	-	-	-	-	-	-	-	1	1	2	-
AVG	2.8	2.2	2.4	-	-	-	-	-	-	-	1.5	1	2.4	1

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01302

Year & Sem:II/I

Subject Name: Building Material Construction

Course Outcomes

- CO1 List building materials and characterize them.
- CO2 Choose the materials for construction activities
- CO3 Recommend suitable sound and thermal insulating material
- CO4 Outline the various structural components in building.
- CO5 Explain about internal construction and finishes of a building.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	-	-	-	-	2	2	1	-	-	-	-	1	-
CO 2	3	-	-	-	-	2	2	1	-	-	1	-	1	-
CO 3	3	-	-	-	-	2	2	1	-	-	1	-	1	-
CO 4	3	-	-	1	-	2	2	2	-	-	1	2	1	2
CO 5	3	-	-	-	-	2	2	2	-	-	1	2	1	-
Average	3			0.2		2	2	1.4			0.8	0.8	1	0.4

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01303

Year & Sem:II/I

Subject Name: Strength Of Material-1


Course Outcomes

- CO1** Analyze simple stresses and strains for various sections.
- CO2** Evaluate reactive forces for statically determinate beams.
- CO3** Determine flexural and shear stresses for different types of beams and sections.
- CO4** Examine the deflection of beams under udl, uvl and point loads.
- CO5** Estimate combined stresses for various sections.

CO-PO and PSO Mapping Correlation

PO / 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	PSO 1	PSO 2
CO 1	2	3	3	3			1			1			3	2
CO 2	2	3	1						1				1	2
CO 3	2	1	2	1							1		3	2
CO 4	3	2	2	1			2						2	2
CO 5	3	3	2	1			1						2	2
Average	2.4	2.4	2	1.2			0.8		0.2	0.2	0.2		2.2	2


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01304

Year & Sem:II/I

Subject Name: Surveying -1


Course Outcomes

- CO1 Explain chain surveying and calculation of area.
- CO2 Determine traverse with prismatic compass.
- CO3 Solve differential levelling and contours related problems.
- CO4 Determine angles using theodolite and solve related problems.
- CO5 Compute areas and volumes.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	3			2	2			2		2	1	2	
CO 2	3	3			2	2			3		2	1	2	
CO 3	3	3			3	2			2		2	1	2	
CO 4	3	3			3	3			3		2	1	2	
CO 5	3	3			3	2			3		2	1	2	
Average	3	3			2.6	2.2			2.6		2	1	2	


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01305

Year & Sem:II/I

Subject Name: Fluid Mechanics

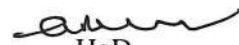
Course Outcomes

- CO1** Classify types of fluids and find hydrostatic force on surface.
- CO2** Explain concept of buoyancy and kinematics of fluid motion.
- CO3** Compute discharge using flow meters.
- CO4** Classify orifices, mouthpieces, notches and weirs and determine discharge through them.
- CO5** Classification and analysis of flow in pipes.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2		1		1								2
CO 2	2	1		1		1								2
CO 3	3	2		1		1								2
CO 4	2	1		1		1								2
CO 5	3	2		1		1								2
Average	2.6	1.6		1		1								2


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01401

Year & Sem: II/II

Subject Name: Strength Of Material-2

Course Outcomes

- CO1 Analyze stresses and strains on various materials.
- CO2 Examine thin and thick cylindrical shells.
- CO3 Determine different types of stresses for circular shaft.
- CO4 Distinguish between short columns and long columns.
- CO5 Assess the principal axis value and its location.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2
CO 1	3	1												2
CO 2	3	3										1		2
CO 3	3	2		1										2
CO 4	3	1												1
CO 5	2	1											1	1
Average	2.8	1.6		0.2								0.2	0.2	1.6

V. S. S. S.
Program Co-ordinator

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01402

Year & Sem:II/I

Subject Name: Surveying -2


Course Outcomes

- CO1** Explain trigonometric levelling.
- CO2** Describe tachometric surveying.
- CO3** Discuss triangulation and trilateration surveying.
- CO4** Analyze curve setting using of theodolite.
- CO5** List modern instruments for surveying and explain remote sensing.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2
CO 1	3	3			3	2			2	2	3	2	2	
CO 2	3	3			3	2			2	2	3	2	2	
CO 3	3	3			3	2			2	2	3	2	2	
CO 4	3	3			3	2			2	2	3	2	2	
CO 5	3	3			3	2			2	2	3	2	2	
Average	3	3			3	2			2	2	3	2	2	


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01404

Year & Sem: II/I

Subject Name: Hydraulics And Hydraulic Machinery

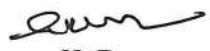
Course Outcomes

- CO1** Classify types of flow in open channels
- CO2** Apply the concept of gradually varied flow and rapidly varied flow in open channels.
- CO3** Determine impact of jet on vanes and explain working of pelton wheel.
- CO4** Explain about turbines and pumps.
- CO5** Recommend different models to perform dimensional analysis.

CO-PO and PSO Mapping Correlation

PO / 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	PSO 1	PSO 2
CO 1	1	2												
CO 2	1	2												
CO 3	1	2				1	1							
CO 4	1	2				1	1							
CO 5		2		2										
Average	0.8	2		0.4		0.4	0.4							


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01403

Year & Sem: II/I

Subject Name: Structural Analysis-I

Course Outcomes

- CO1 Analyze the fixed and continuous beams
- CO2 Analyze beam using moment distribution and slope deflection methods.
- CO3 Derive the Castigliano's theorems on strain energy.
- CO4 Apply influence lines due to moving loads on beams.
- CO5 Describe statically indeterminate structures.

CO-PO and PSO Mapping Correlation

PO / CO	P01	P02	P03	P04	P05	P06	P07	P08	P09	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	1							1	2	
CO2	3	3	3	1	1							1	2	
CO3	3	1	1	1								1	2	
CO4	3	2	1	1	1								2	
CO5	2	1	1			1						1	2	
Average	2.8	2	1.8	1	1	1	0	0	0	0	0	1	2	0

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01501

Year & Sem:III/I

Subject Name: Design And Drawing Of RCC Structures


Course Outcomes

- CO1** Compare working stress method and limit state method.
- CO2** List design steps for shear, torsion and bond with anchorage for beams.
- CO3** Design various slabs as per IS code provision.
- CO4** Design short and long column.
- CO5** Elaborate design of footings and staircases.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	1				1	1		2			1	2	1
CO 2	3	2	3			1	1		2			1	2	1
CO 3	3	2	3		3	1	1		2		2	1	2	1
CO 4	3	2	3		3	1	1		2		2	1	2	1
CO 5	3	2	3		3	1	1		2		2	1	2	1
Average	3	1.8	2.4		1.8	1	1		2		1.2	1	2	1


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01502

Year & Sem:III/I

Subject Name: Estimation , Costing And Valuation

Course Outcomes

- CO1** Classify estimates and explain about standard specifications.
- CO2** Evaluate detailed estimation for residential buildings.
- CO3** Determine the quantities of earth work, reinforcement and prepare estimation for different structural elements.
- CO4** Propose tenders and explain types of contracts.
- CO5** Define concept of rate analysis and prepare valuation reports.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2		2		1			1		3	3		1
CO 2	3	2		2		1			1		3	3		2
CO 3	3	2		2		1			1		3	3		1
CO 4	3	2		2		1			1		3	3		1
CO 5	3	2		2		1			1		3	3		2
Average	3	2		2		1			1		3	3		1.4


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DEPARTMENT OF CIVIL ENGINEERING

Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01503

Year & Sem:III/I

Subject Name: Geotechnical Engineering -1

Course Outcomes

- CO1** Explain index properties of soil.
- CO2** Find soil permeability and calculate the effective stress.
- CO3** Determine stress distribution in soils.
- CO4** Explain consolidation theory.
- CO5** Assess shear strength of soils.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	3	2				2	2	1		2		2	1
CO 2	2	2	2	2						2	2	2		2
CO 3	2	2	1	2										2
CO 4	3	2		1					1			1	1	1
CO 5	3	3	2	1					2				1	2
Average	2.4	2.4	1.4	1.2			0.4	0.4	0.8	0.4	0.8	0.6	0.8	1.6


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01504

Year & Sem:III/I

Subject Name: Engineering Geology

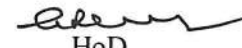
Course Outcomes

- CO1** Identify Earth materials based on physical properties.
- CO2** Classify rocks and geological structures.
- CO3** Examine engineering and construction problems associated with earth processes.
- CO4** Discuss geophysical investigations.
- CO5** Apply geological principles for selecting sites for dams, reservoirs and tunnels.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2						2					2	1	1
CO 2	3	1					1					1		1
CO 3	2													1
CO 4	2		1		2						2			1
CO 5	2			2				2				2	1	1
Average	2.2	0.2	0.2	0.4	0.4		0.6	0.4			0.4	1	0.4	1


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01505

Year & Sem:III/I

Subject Name: Structural Analysis -2

Course Outcomes

- CO1** Analyze arches and categorize them.
- CO2** Simplify the beams and frames using sway concept.
- CO3** Analyze continuous beam and single storey portal frames.
- CO4** Compare matrix methods for analyzing continuous beams.
- CO5** Evaluate plastic analysis parameters on fixed and continuous beams.

CO-PO and PSO Mapping Correlation

PO / CO	O ₁ ^P	O ₂ ^P	O ₃ ^P	O ₄ ^P	O ₅ ^P	O ₆ ^P	O ₇ ^P	O ₈ ^P	O ₉ ^P	O ₁₀ ^P	O ₁₁ ^P	O ₁₂ ^F	SO ₁ ^F	SO ₂ ^P
CO 1	3	2	2	2	2							1	2	
CO 2	3	2	1	2	2							1	2	
CO 3	3	3	3	2	2							1	2	
CO 4	3	3	2	2	2							1	2	
CO 5	2	2	1	2	2							1	2	
Average	2.8	2.4	1.8	2	2	0	0	0	0	0	0	1	2	0


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01601

Year & Sem:III/II

Subject Name: Concrete Technology

Course Outcomes

- CO1** List properties of cement and aggregates.
- CO2** Outline properties of concrete in fresh and hardened states.
- CO3** Summarize special concretes and discuss their applications
- CO4** Discuss non-destructive testing methods.
- CO5** Design concrete mix as per ACI method & IS 10262 specifications

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	-	-	2	-	2	1	1	-	-	2	2	-	-
CO 2	3	-	-	2	-	2	1	-	-	-	2	2	-	-
CO 3	3	3	3	3	-	3	3	-	-	2	2	2	3	2
CO 4	3	-	-	2	-	2	1	-	-	-	2	1	-	-
CO 5	3	-	-	2	-	2	1	-	-	-	2	1	-	-
Average	3	0.6	0.6	2.2		2.2	1.4	0.2		0.4	2	1.6	0.6	0.4

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01602

Year & Sem:III/II

Subject Name: Design And Drawing Of Steel Structures

Course Outcomes

- CO1** Design strength parameters for steel members.
- CO2** Design the compression members, battens and splices.
- CO3** Design beams, purlins and built up sections.
- CO4** Design connections and truss joints.
- CO5** Design plate girder and gantry girder.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2	3		3	1	1		2		2	1	2	1
CO 2	3	2	3		3	1	1		2		2	1	2	1
CO 3	3	2	3		3	1	1		2		2	1	2	1
CO 4	3	2	3		3	1	1		2		2	1	2	1
CO 5	3	2	3		3	1	1		2		2	1	2	1
Average	3	2	3		3	1	1		2		2	1	2	1

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01603

Year & Sem: III/II

Subject Name: Geotechnical Engineering -2

Course Outcomes

- CO1** Explain methods of soil exploration.
- CO2** Demonstrate stability analysis of slopes under different soil conditions.
- CO3** Illustrate different earth pressure theories.
- CO4** Summarize laboratory and in-situ tests for bearing capacity of soils.
- CO5** Compare pile and well foundations based on soil conditions.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	2	1	2					1				2	1
CO 2	2													1
CO 3	2		1	2									2	1
CO 4	2	1		1					2					2
CO 5	2	1											1	
Average	2	0.8	0.4	1					0.6				1	1

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01605

Year & Sem:III/II

Subject Name: Water Resources Engineering -1

Course Outcomes

- CO1 Measure hydrological parameters.
- CO2 Apply hydrographs for flood computation.
- CO3 Assess water requirement of crops and compute frequency of irrigation.
- CO4 Design channels based on silt theories.
- CO5 Design diversion of head works and canal outlets.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2		1		1			2		3	2	1	1
CO 2	3	2	2	1		1			2		3	2	1	1
CO 3	3	2	2	1		1			2		3	2	1	1
CO 4	3	3	3	1		1			2		3	2	2	3
CO 5	3	3	3	1		1			2		3	2	2	3
Average	3	2.4	2	1		1			2		3	2	1.4	1.8

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01606

Year & Sem:III/II

Subject Name: Remote Sensing And GIS

Course Outcomes

- CO1** Explain Photogrammetric techniques.
- CO2** Outline basic concepts and principles of remote sensing.
- CO3** Explain data representation.
- CO4** Apply GIS in civil engineering.
- CO5** Analyze the energy interactions in the atmosphere and earth surface features

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	-	-	1	-	1	2	1	-	-	1	-	1	-
CO 2	2	-	-	1	-	1	2	1	-	-	1	1	-	-
CO 3	1	-	-	1	-	1	1	1	-	-	2	-	1	-
CO 4	1	-	-	1	-	1	1	1	-	-	2	-	2	1
CO 5	2	-	-	1	-	1	1	1	-	-	1	-	-	-
Average	1.6			1		1	1.4	1			1.4	0.2	0.8	0.2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01604

Year & Sem:III/II

Subject Name: Transportation Engineering –I

Course Outcomes

- CO1** Explain engineering surveys and drawings for road alignment.
- CO2** Discuss highway geometric design elements.
- CO3** Outline principles of traffic engineering and management.
- CO4** Discuss intersection design.
- CO5** Design flexible and rigid pavements.

CO-PO and PSO Mapping Correlation

PO / CO	P 01	P 02	P 03	P 04	P 05	PO 6	PO 7	P 08	P 09	F 010	F 011	F 012	F SO1	F SO2
CO 1	3	2	2	2	1			2	1	2		1	1	3
CO 2	3	2	2	2	1				1	1		1	1	3
CO 3	3	2	2	1	1						1		1	2
CO 4	3	3	2	2	1			1					1	2
CO 5	3	3	2	2	1								1	2
Average	3	2.4	2	1.8	1	0	0	1.5	1	1.5	1	1	1	2.4


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01701

Year & Sem: IV/I

Subject Name: Finite Element Methods

Course Outcomes

- CO1** Explain about solid elements.
- CO2** Develop stiffness matrix for various elements.
- CO3** Formulate isoperimetric elements for 2D analysis – formulation of CST
- CO4** Evaluate irregular structures with irregular loading
- CO5** Simplify matrices using condensation techniques.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	2	1	2	1								2	
CO 2	1	3	1	2	1							1	2	
CO 3		2	1	2								1	2	
CO 4		2	1	2	1								2	
CO 5		2	1	2									2	
Average	0.6	2.2	1	2	0.6							0.4	2	

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01702

Year & Sem: IV/I

Subject Name: Transportation Engineering - II


Course Outcomes

- CO1** Explain components of railway engineering.
- CO2** Describe about railway geometric design.
- CO3** Discuss principles of airport engineering.
- CO4** Design runway and taxiway and layout of terminals.
- CO5** Classify ports and harbours.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	2	1										1	3
CO 2	2	2	2	2									1	3
CO 3	3	3	1											3
CO 4	3	2	3	1									2	3
CO 5	3	2	1											3
Average	2.6	2.2	1.6	1.5	0	0	0	0	0	0	0	0	1.333333	3

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01703

Year & Sem: IV/I

Subject Name: Environmental Engineering

Course Outcomes

- CO1** Explain water demand and water quality parameters.
- CO2** Describe about water distribution Systems.
- CO3** Compare water treatment methods.
- CO4** Design wastewater collection systems.
- CO5** Recommend wastewater and sludge treatment facilities.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2	1	2	2	2			2		1	1		1
CO 2	3	2	2	2	3	2			2		1	1		2
CO 3	3	2	2	2	3	2			2		2	1		2
CO 4	3	2	2	2	2	2			2		2	1		2
CO 5	3	1		2		2			2		2	1		2
Average	3	1.8	1.4	2	2	2			2		1.6	1		1.8

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01704

Year & Sem: IV/I

Subject Name: Water Resources Engineering -2


Course Outcomes

- CO1** Design canal regulation works and cross drainage works.
- CO2** Classify the river system and stream gauging system.
- CO3** Determine the yield of reservoir
- CO4** Design of gravity dam and Earth dam.
- CO5** Elaborate spillway and water power system.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	3	3	2	2	1			1		2	2		2
CO 2	3	3	2	2	2	1			1		3	2		2
CO 3	3	3	2	2	2	1			1		3	2		2
CO 4	3	3	3	2	2	1			1		3	2		2
CO 5	3	3	3	2	2	1			1		3	2		2
Average	3	3	2.6	2	2	1			1		3	2		2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01707

Year & Sem: IV/I

Subject Name: Air Pollution & Quality Control

Course Outcomes

- CO1** Classify pollutants and discuss their effects.
- CO2** Describe atmospheric properties and their effect on dispersion.
- CO3** Explain the mechanism of particulate control devices.
- CO4** Discuss the mechanism of air pollution control equipment
- CO5** Summarize air pollution standards and discuss air pollution management.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	3		1		1	1							3
CO 2	3	2		1			1							2
CO 3	3	2		2		2	2							2
CO 4	2	1		1		2	1							2
CO 5	2	1		2		1	1							2
Average	2.6	1.8		1.4		1.2	1.2							2.2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01710

Year & Sem: IV/I

Subject Name: Rehabilitation & Retrofitting Of Structures


Course Outcomes

- CO1** Discuss various types of damages in structures.
- CO2** Explain causes and prevention of corrosion in reinforcement.
- CO3** Describe methods to examine concrete defects.
- CO4** Discuss methods of repair and rehabilitation.
- CO5** Examine Building health and safety.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	-	-	1	-	1	2	-	-	-	1	-	1	-
CO 2	2	-	-	1	-	1	2	-	-	-	1	1	-	-
CO 3	2	-	-	1	-	1	1	-	-	-	2	-	-	-
CO 4	2	-	-	1	2	1	1	2	-	-	2	-	2	-
CO 5	2	-	-	1	-	2	1	2	-	-	1	-	-	-
Average	2			1	0.4	1.2	1.4	0.8			1.4	0.2	0.6	


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01709

Year & Sem:IV/I

Subject Name: Earthquake Resistant Design of Structures

Course Outcomes

- CO1 Explain concept of response spectrum.
- CO2 Discuss Indian Seismic Codes.
- CO3 Describe elastic rebound theory.
- CO4 Design of Shear walls as per IS:13920.
- CO5 Plan seismically safe structures.

CO-PO and PSO Mapping Correlation

PO / CO	P 01	P 02	P 03	P 04	P 05	P 06	P 07	P 08	P 09	PSO 01	PSO 02	PSO 03	PSO 04	PSO 05
CO 1	2	-	-	-	-	1	1	-	-	-	-	-	1	1
CO 2	2	-	-	-	-	1	1	-	-	-	-	-	1	1
CO 3	2	-	-	-	-	1	1	-	-	-	-	-	1	1
CO 4	2	-	-	-	-	1	1	-	-	-	-	-	1	1
CO 5	2	-	1	-	-	1	1	-	-	-	-	-	2	2
Average	2	0	1	0	0	1	1	0	0	0	0	0	1.2	1.2


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01804

Year & Sem: IV/II

Subject Name: Pre Stressed Concrete


Course Outcomes

- CO1** Able to understand the basic concepts of pre and post tensioning methods
- CO2** Estimate the various losses of pre stress
- CO3** Able to analyse and design of prestressed beam under flexure and shear
- CO4** Able to analyse the PSC composite beam
- CO5** To find the short and long term deflection

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2	1			1	1		2			1	2	1
CO 2	3	2	1			1	1		2			1	2	1
CO 3	3	2	3			1	1		2		2	1	2	1
CO 4	3	2	2			1	1		2			1	2	1
CO 5	3	2	2			1	1		2			1	2	1
Average	3	2	1.8			1	1		2		0.4	1	2	1


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01802

Year & Sem: IV/II

Subject Name: Advanced Structural Engineering

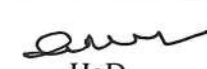
Course Outcomes

- CO1 Design cantilever and counter fort retaining walls .
- CO2 Design on ground and elevated water tanks.
- CO3 Design bunkers and silos.
- CO4 Design reinforced concrete chimneys.
- CO5 Design of a flat slab and cinema balcony.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2
CO 1	3	2	3	2	2								2	2
CO 2	3	2	3	2	2								2	2
CO 3	3	2	3	2	2								2	2
CO 4	3	2	3	2	2								2	2
CO 5	3	2	3	2	2								2	2
Average	3	2	3	2	2	0	0	0	0	0	0	0	2	2


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: (15A01306)

Year & Sem:II/I

Subject Name: Surveying Laboratory-I

Course Outcomes

- CO1** Solve field problems using chain surveying.
- CO2** Determine ground area using compass.
- CO3** Make use of plane table to solve field problems.
- CO4** Measure ground levels using Dumpy level
- CO5** Deduce ground levels using contouring method.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	2									2		2	
CO 2	2	2									2		2	
CO 3	2	2									2		2	
CO 4	2	2									2		2	
CO 5	2	2									2		2	
Average	2	2									2		2	

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01307

Year & Sem:II/I

Subject Name: Strength of Materials Laboratory

Course Outcomes

- CO1 Demonstrate bending test on simply supported beams
- CO2 Test for compression and hardness on different materials.
- CO3 Prove Maxwell reciprocal theorem on simply supported beams.
- CO4 Test for impact, shear and torsion on various materials.
- CO5 Carry out tension test on mild steel bars using UTM.

CO-PO and PSO Mapping Correlation

PO / 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	PSO 1	PSO 2
CO 1	3	2	3										2	
CO 2	3	2	3										2	
CO 3	3	2	3										2	
CO 4	3	2	3										2	
CO 5	3	2	3										2	
Average	3	2	3										2	

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01405

Year & Sem:II/II Subject Name: Fluid Mechanics & Hydraulic Machinery Lab

Course Outcomes

- CO1** Compute discharge through pipe.
- CO2** Evaluate major and minor losses.
- CO3** Determine of Coefficient of discharge for orifices mouthpieces.
- CO4** Prove Bernoulli's Theorem.
- CO5** Predict the efficiency of Pelton wheel and Francis turbine.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2
CO 1	3	2												1
CO 2	3	2												1
CO 3	3	2												1
CO 4	3	2												1
CO 5	3	2												1
Average	3	2												1

V.S. Kumar
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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01406

Year & Sem: II/II

Subject Name: Surveying Lab-II

Course Outcomes

- CO1** Make use of trigonometric levelling for height and distance determination.
- CO2** Determine curve setting and LS and CS
- CO3** Make use of total station for using area and traversing and contouring
- CO4** Plan for setting out buildings and pipe line in field.
- CO5** Make use of total station for finding distance between inaccessible points.

CO-PO and PSO Mapping Correlation

PO / 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	PSO 1	PSO 2
CO 1	2	2			2		1				2		2	2
CO 2	2	2			2		1				2		2	2
CO 3	2	2			2		1				2		2	2
CO 4	2	2			2		1				2		2	2
CO 5	2	2			2		1				2		2	2
Average	2	2			2		1				2		2	2

V.S. Sathya
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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01508

Year & Sem: III/I

Subject Name: Engineering Geology Lab

Course Outcomes

- CO1 Identify minerals
- CO2 Identify rocks
- CO3 Solve thickness problems.
- CO4 Solve of strike and dip problems
- CO5 Interpret geological maps

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2
CO 1	2	2	1	1										2
CO 2	2	2	1	1										2
CO 3	2	2	2										2	
CO 4	2	2	2										2	
CO 5	2	2	1										2	
Average	2	2	1.4	1									2	2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01509

Year & Sem:III/I

Subject Name: Geotechnical Engineering Lab

Course Outcomes

- CO1 Determine index properties of soils.
- CO2 Test on engineering properties of soils .
- CO3 Classify soils.
- CO4 Determine the strength of soil
- CO5 Assess shear strength of soil

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3		2										3	
CO 2	3		3		1								3	
CO 3	3				2								3	
CO 4	2				2							1	2	
CO 5	2				2							1	2	
Average	2.6		2.5		1.75							1	2.8	


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: **15A01609**

Year & Sem: III/II

Subject Name: **Concrete Technology Lab**

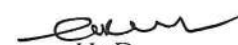
Course Outcomes

- CO1** Examine different properties of cement
- CO2** Examine various properties of fine and coarse aggregates
- CO3** Test various properties of fresh concrete
- CO4** Test various properties of hardened concrete
- CO5** Describe Non-Destructive testing on concrete

CO-PO and PSO Mapping Correlation

PO / 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	PSO 1	PSO 2
CO 1	3		2	1							2		3	
CO 2	3		1		2						2		2	
CO 3	3				2						2		3	
CO 4	3		2		2						2		2	
CO 5	3				2						2		3	2
Average	3		1.6	1	2						2		2.75	2


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01610

Year & Sem: III/II

Subject Name: Transportation Engineering Laboratory

Course Outcomes

- CO1 Test suitability of aggregates in crushing.
- CO2 Test Impact, abrasion and specific gravity of aggregates.
- CO3 Examine shape and elongation indices for road aggregates.
- CO4 Test softening point and penetration test on bitumen.
- CO5 Test bitumen for ductility, flash and fire point.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	2	1			1						2			2
CO 2	2	2			2						2			3
CO 3	3	1			1						2			2
CO 4	2	1			1						2			2
CO 5	3	1			2						2			2
Average	2.6	1.2			1.4						2			2.2

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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01711

Year & Sem: IV/I

Subject Name: CAD Laboratory

Course Outcomes

- CO1** Combine and analyze 2-D and 3d Frames using STAAD PRO.
- CO2** Formulate and design Steel Tabular Truss using STAAD PRO
- CO3** Estimate plate stress and design Retaining wall using STAAD PRO.
- CO4** Create and design one way and two way slabs using STAAD PRO
- CO5** Minimize the deflection of simple tower using STAAD PRO.

CO-PO and PSO Mapping Correlation

PO / 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	PSO 1	PSO 2
CO 1	3		2		3						2		3	2
CO 2	3		2		3						2		2	2
CO 3	3		2		3						2		3	2
CO 4	3		2		3						2		2	2
CO 5	3		2		3						2		3	2
Average	3		2		3						2		2.6	2


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Course Outcomes and CO-PO and PSO Mapping Correlation

Regulation: R15

Subject Code: 15A01712

Year & Sem: IV/I

Subject Name: Environmental Engineering Laboratory

Course Outcomes

- CO1** Assess different water quality parameters.
- CO2** Describe tests for effective water treatment.
- CO3** Test various properties of sewage
- CO4** Test various properties of industrial wastewater
- CO5** Describe characteristics of water and wastewater samples.

CO-PO and PSO Mapping Correlation

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	1				1	1	2					2	1
CO 2	2	2				1	2	2					1	1
CO 3	2				1	1	2	2						2
CO 4	2	2						3						1
CO 5	2	2					1	2						1
Average	2.2	1.75			1	1	1.5	2.2					1.5	1.2


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