



# KLS Vishwanathrao Deshpande Institute of Technology

(Accredited by NAAC with "A" Grade)

(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)

(Recognized Under Section 2(f) by UGC, New Delhi)

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**DEPARTMENT OF CIVIL ENGINEERING**



## ADD-ON COURSES LIST OFFERED FOR THE YEAR 2023-24

Sl.No	Semester	Add-on Course
1	V	SUSTAINABLE BUILDINGS
2	VI	DESIGN OF BRIDGE SUPER STRUCTURE
3	VII	INDUSTRIAL WASTEWATER TREATMENT



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Dept of Civil Engg  
KLS V.D.I.T, Haliyal



KLS

Vishwanathrao Deshpande Institute of Technology, Haliyal-581329

**B. E (CIVIL ENGINEERING)  
ADD ON COURSE SYLLABUS**

**ENVIRONMENTAL SUSTAINABILITY**

Total Hoursof Pedagogy	30 Hours	CIEMarks	05
Teaching Hours/Week	3	ExamHours	1hr
Semester	V	AcademicYear	2023-24

**Course Learning Objectives:**

**This course will enable Students to:**

This course will enable students to gain knowledge in Environmental protection and Management systems

**Module- 1**

**Environmental Management Standards:** Unique Characteristics of Environmental Problems - Systems approach to Corporate environmental management - Classification of Environmental Impact Reduction Efforts - Business Charter for Sustainable Production and Consumption - Tools, Business strategy drivers and Barriers - Evolution of Environmental Stewardship. Environmental Management Principles - National policies on environment, abatement of pollution and conservation of resources - Charter on Corporate responsibility for Environmental protection.

10Hours

**Module- 2**

**Environmental Management Objectives:** Environmental quality objectives - Rationale of Environmental standards: Concentration and Mass standards, Effluent and stream standards, Emission and ambient standards, Minimum national standards, environmental performance evaluation: Indicators, benchmarking. Pollution control Vs Pollution Prevention - Opportunities and Barriers - Cleaner production and Clean technology, closing the loops, zero discharge technologies.

10Hours

**Module- 3**

**Environmental Management System:** EMAS, ISO 14000 - EMS as per ISO 14001 - benefits and barriers of EMS - Concept of continual improvement and pollution prevention - environmental policy - initial environmental review - environmental aspect and impact analysis - legal and other requirements- objectives and targets - environmental management programs - structure and responsibility - training awareness and competence- communication - documentation and document control - operational control - monitoring and measurement - management review.

10Hours

**Course Outcomes**

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

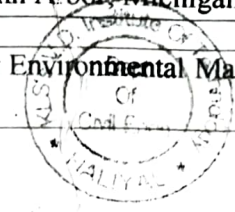
1. Appreciate the elements of Corporate Environmental Management systems complying to international environmental management system standards.
2. Lead pollution prevention assessment team and implement waste minimization options.
3. Develop, Implement, maintain and Audit Environmental Management systems for Organizations.

**Text Books**

- T1. Paul L Bishop „Pollution Prevention: Fundamentals and Practice, McGraw- Hill International, Boston, 2000.
- T2. Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations, Second Edition, NSF International, Ann Arbor, Michigan, January 2001.

**Reference Books**

- R1. ISO 19011: 2002, “Guidelines for quality and/or Environmental Management System auditing, Bureau of Indian Standards, New Delhi, 2002



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ADD ON COURSE SYLLABUS**

**ADD ON COURSE**

Course Title	INDUSTRIAL WASTE WATER TREATMENT	CIE Marks	05
Teaching Hours/Week (L:T:P: S)	0:3:0:0	SEE Marks	-
Total Hours of Pedagogy	30	Semester	VII
Credits	-	Exam Hours	1 hr

**Course objectives:** This course will enable students to;

1. understand the difference between domestic and industrial waste water
2. learn various methods of treatment of industrial waste water.
3. apply the principles of Industrial effluent treatment process for different industrial wastes.

**Module-1**

Difference between domestic and industrial waste water, effect of effluent discharge on streams, methods of industrial waste water treatment; volume reduction, strength reduction, neutralization, equalization and proportioning. **10 Hours**

**Module-2**

Removal of organic, inorganic and colloidal solids, combined treatment methods; merits, demerits and feasibility, principles of discharge of raw, partially treated and completely treated wastes in to streams. Process flow chart, sources and characteristics of industrial waste water, treatment methods, reuse and recovery and disposal; cotton and textile industry, tanning industry. **10 Hours**

**Module-3**

Process flow chart, sources and characteristics of industrial waste water, treatment methods, reuse and recovery and disposal; cane sugar and distilleries, dairy industry, steel and cement industry, paper and pulp industry, pharmaceutical and food processing industry. **10 Hours**

**Course outcomes:** After studying this course, students will be able to:

1. Understand the difference between domestic and industrial waste water and acquires knowledge about treatment methods of industrial waste water.
2. Manage sewage and industrial effluent issues.
3. Evaluate degree of treatment and type of treatment for disposal, reuse and recycle.

**TEXT BOOKS / REFERENCES:**

- T1. Metcalf and Eddy, "Wastewater Engineering - Collection, Treatment, Disposal and Reuse", McGraw Hill Pub.Co., 2009.
- T2. Nelson Leonard Nemerow, "Industrial Waste Treatment", Butterworth-Heinemann, 2007.
- R1. Patwardhan A.D, "Industrial Waste Water Treatment", PHI Learning Private Limited-New Delhi
- R2. Hammer, M.J. and Hammer, M.J., "Water and Wastewater Technology", 7th Ed., Prentice Hall of India

*S. G. Higeurath*  
(S. G. Higeurath)  
Staff Incharge.

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**B. E (CIVIL ENGINEERING)  
ADD ON COURSE SYLLABUS**

**ADD ON COURSE FOR EVEN SEM AY 2023-24**

Course Title	<b>Design of Bridge Super Structures</b>	CIE Marks	10
Teaching Hours/Week (L:T:P: S)	0:2:0:0	SEE Marks	-
Total Hours of Pedagogy	30	Semester	VI
Credits	-	Exam Hours	1 hr

**Course objectives:**

This course will enable students to understand the analysis and design of concrete Bridges.

**Module-1**

Introduction to bridges, classification, selection of bridge site and preliminary and detailed survey work. Components of Bridge, Abutments and Piers. Computation of discharge, linear waterway, economic span, afflux, scour depth.	<b>10 Hours</b>
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Design of Slab Bridges: Straight Bridges	<b>10 Hours</b>
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**Module-3**

Design of T beam bridges (up to three girder only) Proportioning of components, analysis of slab using IRC Class AA tracked vehicle, structural design of slab, analysis of cross girder for dead load & IRC Class AA tracked vehicle, structural design of cross girder, analysis of main girder using Courbon's method, calculation of dead load BM and SF, calculation of live load B M & S F using IRC Class AA Tracked vehicle. Structural design of main girder.	<b>10 Hours</b>
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**Course outcome (Course Skill Set)**

At the end of the course the student will be able to:

1. Understand the load distribution and IRC standards.
2. Design the slab bridges
3. Design the beam bridges

**TEXT BOOKS / REFERENCES:**

1. Johnson Victor. D, "Essentials of Bridge Engineering", Oxford Publishing Company.
2. N Krishna Raju, "Design of Bridges, Oxford and IBH publishing company
3. T R Jagadeesh and M A Jayaram, "Design of bridge structures", Prentice Hall of India

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