

ADDON Syllabus

Global Warming and Climate Change

Course objectives: To provide an understanding of:

- The factors responsible for climate change,
- The biological and sociological consequences of such changes; and
- The possible engineering, economic, and legal solutions to avoid more extreme perturbations.

Module -1
Introduction: Radiative forcing, Earth Albedo, Irradiance, Energy budget. Scientific principles- warming earth and Principle of thermodynamics Green-House Effect as a Natural Phenomenon, Green House Gases (GHGs) and their Emission Sources and sinks of CO ₂ , Methane, Nitrous oxides, carbon cycle disequilibrium, Global Warming Potential (GWP) of GHGs Characterization & Classification of atmospheric pollutants, description and application of point, line and areal sources. [L1,L2]
Module -2
Climate change- Climate change trends. Components of climate change process, Ozone layer depletion and its control, Impacts of climate change: Global and India, Temperature Rise, Sea Level rise, Coastal Erosion and landslides, Coastal Flooding, Wetlands and Estuaries loss Impact of ocean current on global climate, EL-NINO & LA-NINA effects. [L1,L2]
Module -3
Kyoto Protocol: Importance, Significance and its role in Climate Change Carbon Trading - Mechanisms, Various Models (Indian) Global and Indian Scenario. Cleaner Development Mechanisms: Various Projects related to CO ₂ Emission Reduction. Alternatives of Carbon Sequestration: Conventional and non-conventional techniques, Role of Countries and Citizens in Containing Global Warming. [L1,L2]

Course outcomes: On completion of this course, students are able to:

- Measure climate factors and how they change
- Understand connections between global warming and human activities
- Identify effects of climate change on biodiversity and ecosystems in different biomes and aquatic systems
- Model possible scenarios for future climate change
- Achieve possible ways to deal with climate change.

Reference Books:

1. Barry R.G., and Chorley R.L., "Atmosphere, Weather and Climate", 4th Edition, ELBS Publication.
2. Bolin B., "Carbon Cycle Modelling", John Wiley and Sons Publications.
3. Corell R.W., and Anderson P.A., "Global Environmental Change", Springer Verlag Publishers.
4. Francis D., "Global Warming: The Science and Climate Change", Oxford University Press.
5. Frame B., Medury Y., and Joshi Y., "Global Climate Change: Science, Impact and Responses".



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COURSE PLAN	

Semester: III

Year: 2021-22 (Odd/Even)

Course Title	Global Warming & Climate Change	Course Code	ADDON
Total Teaching Hours	30	Teaching hours/week	02
CIA: 10		Prerequisites	Global Warming & Climate Change
Course Plan prepared by	Prof. Seema R Basarikatti	Approved by	Prof. Harsha Jadhav
Course Outcomes			
CO1: Measure climate factors and how they change CO2: Understand connections between global warming and human activities CO3: Identify effects of climate change on biodiversity and ecosystems in different biomes and aquatic systems CO4: Model possible scenarios for future climate change CO5: Achieve possible ways to deal with climate change.			

CO's And PO's Mapping Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	3		3	3										
2	3		3	3										
3	3		3	3										
4	3		3	3										
5	3		3	3										

Text /Reference Books

- T1: Barry R.G., and Chorley R.L., "Atmosphere, Weather and Climate", 4th Edition, ELBS Publication.
T2: Bolin B., "Carbon Cycle Modeling", John Wiley and Sons Publications.
T3: Corell R.W., and Anderson P.A., "Global Environmental Change", Springer Verlag Publishers.
T4: Francis D., "Global Warming: The Science and Climate Change", Oxford University Press.
T5: Frame B., Medury Y., and Joshi Y., "Global Climate Change: Science, Impact and Responses".

Module Wise Text /Reference Books

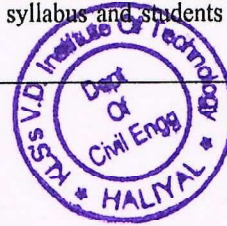
Module 1: T1

Module 2: T1


Module 3: T4

Syllabus for the Internal Assessment Tests (Tentative)

Test pattern	Questions will be set according to above syllabus and students should write test through online mode.
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ADD-ON COURSE		

Add on course syllabus

AY: 2021-22 (Odd)

Department: Civil Engineering
Semester: 5th

Add-on Course Title: Recent Trends in Civil Engineering

Course Contents: Theory (30 hours duration)

Course delivery plan:

Theory Slots given in the time table

Evaluation:

Written Test: Assignment

Quiz 30 marks

Class Test

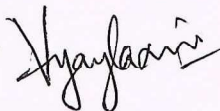
} To be reduced to marks out of 5

Sl. No.	Syllabus details	No. of hours: 10Hrs/Module	BTL
		Theory	
1	Advances and Challenges in Structural Health Monitoring, Emerging Challenges in Environmental Engineering, Impact of Site Effect & Liquefaction on Seismic Design of Structures, Recent Advances in Highway Design and Public Transportation Site visit to RMC plant	10Hrs	L2
2	Express ways, Smart Hybrid Nano-Composites for Structural Engineering, Fuzzy Logic in Civil Engineering, Engineered Lumber Construction & Design, Civil Engineering Applications of Artificial Intelligence, Talk by Industrial expert.	10Hrs	L2
3	Machine learning in Civil Engineering, Advanced waste water treatment, Computing (need, importance and tools) for Civil Engineers, Use of Advance Tools and Methodologies in Measurements and Modeling of Hydrological Processes, Talk by Alumni.	10Hrs	L2
	Total hours	30 Hrs	

Reference books:

1. Artificial Intelligence – A Modern Approach (3rd edition) by Stuart Russell & Peter Norvig
2. Machine Learning, Tom Mitchell, McGraw Hill, 1997
3. Wastewater Engineering: Treatment and Resource Recovery 5th Edition By Metcalf & Eddy, Inc. and George Tchobanoglous and H. Stensel and Ryujiro Tsuchihashi and Franklin Burton

Staff




Prof. Vijaylaxmi V

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COURSE PLAN		

Semester: V

Year: 2021-22(ODD)

Course Title	RECENT TRENDS IN CIVIL ENGINEERING	Course Code	ADD - ON
Total Teaching Hours	30	Teaching hours/week	02
CIA: 00	SEE:00	Prerequisites	Building Material and Construction
Course Plan prepared by	Prof. Vijaylaxmi V	Approved by	Prof. Harshavardhan
Course Outcomes			
CO1: To understand the recent advances in different fields of Civil Engineering			
CO2: To understand the use of advance tools and modern method of construction in the site			
CO3: To understand the concept of machine learning and application of artificial intelligence in Civil Engineering.			

CO's And PO's Mapping Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	3						3							
2	3					3	3							
3	3				3									

Text /Reference Books

T1: Artificial Intelligence – A Modern Approach (3rd edition) by Stuart Russell & Peter Norvig
T2: Machine Learning, Tom Mitchell, McGraw Hill, 1997
T3: Wastewater Engineering: Treatment and Resource Recovery 5th Edition By Metcalf & Eddy, Inc. and George Tchobanoglous and H. Stensel and Ryujiro Tsuchihashi and Franklin Burton

Module Wise Text /Reference Books

Module 1: T1, T2	Module 2: T2, T3	Module 3: T1, T2, T3
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Syllabus for the Internal Assessment Tests

Test pattern	Questions will be set according to above syllabus and students should write for 50 Marks in 1 Hour 15 min., and will be converted to out of 5 Marks. Questions will be of descriptive type.
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Semester: VII

Year: 2020-21 (Odd/Even)

Course Title	Advanced Concrete Technology	Course Code	-
Total Teaching Hours	30	Teaching hours/week	03
CIA: 05	SEE:-	Prerequisites	Concrete Technology
Course Plan prepared by	Prof. Parvati Oni	Approved by	

Course Outcomes

- CO1: To study the microscopic structure of concrete.
 CO2: To study the durability aspect of concrete.
 CO3: To understand the special concreting methods/techniques.

CO's And PO's Mapping Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	H													
2	H													
3					M									

Text /Reference Books

Text Books:

- T1.Neville A.M. "Properties of Concrete"-4th Ed., Longman.
 T2. M.S. Shetty, Concrete Technology - Theory and Practice Published by S. Chand and Company, New Delhi.
 T3. Kumar Mehta. P and Paulo J.M. Monteiro "Concrete-Microstructure, Property and Materials", 4th Edition, McGraw Hill Education, 2014
 T4. A.R. Santha Kumar, "Concrete Technology", Oxford University Press, New Delhi (New Edition).

Reference Books:

- R1. M L Gambir, "Concrete Technology", McGraw Hill Education, 2014.
 R2. N. V. Nayak, A. K. Jain Handbook on Advanced Concrete Technology, ISBN: 978-81-8487-186-9
 R3. Job Thomas, "Concrete Technology", CENGAGE Learning, 2015.
 R4. IS 4926 (2003): Code of Practice Ready-Mixed Concrete [CED 2: Cement and Concrete] Criteria for RMC Production Control, Basic Level Certification for Production Control of Ready Mixed Concrete- BMTPC.
 R5. Specification and Guidelines for Self-Compacting Concrete, EFNARC, Association House.

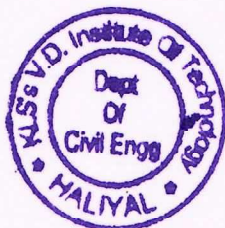
Module Wise Text /Reference Books

Module 1: T1, R1	Module 2: T1, R1	Module 3: T1, R1
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Syllabus for the Internal Assessment Tests (Tentative)

All the modules ie. M1,M2,M3	
Test pattern	Questions will be set according to above syllabus and students, should write for 50 Marks in 1 Hour 15 min., and will be converted to out of 05 Marks.

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ADD-ON COURSE

Add on course syllabus


Sub: Advanced Concrete Technology

Sl. No.	Syllabus details	No. of hours		BTL
		Theory	Lab	
1	Importance of Bogue's compounds, Structure of hydrated cement paste, transition zone, factors affecting strength and porosity of concrete, Rheology of concrete in terms of Bingham's parameter	10		L1,L2
2	Durability of Concrete: Introduction, Permeability of concrete, chemical attack, acid attack, corrosion in concrete, Thermal conductivity, thermal diffusivity, specific heat, Alkali aggregate reaction, IS 456-2000 requirement for durability. Experimental demo of durability tests.	10		L1,L2
3	Methods of concreting- Pumping, Underwater concreting Special concrete: Shotcrete, High volume fly ash concrete: concept, properties, typical mix, Ferro cement: materials, techniques of manufacture, properties and application	10		L1,L2
	Total hours		30	

Reference books:

1. Neville A.M. "Properties of Concrete"-4th Ed., Longman.
2. M.S: Shetty, Concrete Technology - Theory and Practice Published by S. Chand and Company, New Delhi.
3. Kumar Mehta. P and Paulo J.M. Monteiro "Concrete-Microstructure, Property and Materials", 4th Edition, McGraw Hill Education, 2014
4. A.R. Santha Kumar, "Concrete Technology", Oxford University Press, New Delhi (New Edition).




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ADD-ON COURSE

AY : 2021-22

Department: Civil Engineering
Semester: VII

Add-on Course Title: Advanced Concrete Technology

Course Contents (30 or more hours) :

Theory: 30 hours

Lab:

Course delivery plan:

Theory / Lab Slots are given in the time table

Evaluation:

Written Test/Lab:


30 marks

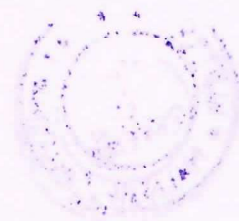
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Evaluators


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ADD-ON COURSE		

Add on course syllabus

AY: 2021-22 (EVEN)

Department: Civil Engineering
Semester: 4th

Add-on Course Title: Timber Engineering

Course Contents: Theory (30 hours duration)

Course delivery plan:

Theory Slots given in the time table

Evaluation:

Written Test: Assignment

Quiz

30 marks

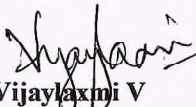
Class Test

} To be reduced to marks out of 5

Sl. No.	Syllabus details	No. of hours: 10Hrs/Module	BTL
		Theory	
1	Introduction, The Structure of Timber, Natural Characteristics of Timber, Strength Grading of Timber, Section Sizes, applications, limitations, advantages and disadvantages, Site visit to Timber Industry	10Hrs	L2
2	Engineered Wood Products (EWPS), Suspended Timber Flooring, Adhesive Bonding of Timber, Preservative Treatment for Timber, Joints and systems based on solid timber, Talk by Industrial expert.	10Hrs	L2
3	Fire Safety and Resistance, the benefits of Timber as a Building Material, Factors that influence mechanical behaviour, Flexure and shear property its laboratory test, its stress strain characteristics, Strength reducing characteristics or naturally occurring defects, Talk by Alumni.	10Hrs	L2
	Total hours	30 Hrs	

Reference books:

1. Timber Engineering by Sven Thelandersson, Hans J. Larsen, 1st Edition, Kindle Edition, May 2009
2. Structural Timber Design to Eurocode 5 Hardcover by Jack Porteous, Abdy Kermani – Import, 19 November 2007
3. Principles of Structural Design Wood, Steel, and Concrete, by Ram S. Gupta, Third Edition, Published June 28, 2019.

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COURSE PLAN

Semester: IV

Year: 2021-22(EVEN)

Course Title	TIMBER ENGINEERING	Course Code	ADD - ON
Total Teaching Hours	30	Teaching hours/week	02
CIA: 00	SEE:00	Prerequisites	Building Material and Construction
Course Plan prepared by	Prof. Vijaylaxmi V	Approved by	Prof. Harshavardhan
Course Outcomes			
CO1. Understanding of the structural behaviour of solid timber and engineered wood products			
CO2. Understanding the principles for the design of different timber elements.			
CO3. Understand the fundamentals of the material properties and natural characteristics of wood, and timber			

CO's And PO's Mapping Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	3													
2	3		3			3								
3	3				3									

Text /Reference Books

- T1. Timber Engineering by Sven Thelandersson, Hans J. Larsen, 1st Edition, Kindle Edition, May 2009
T2. Structural Timber Design to Eurocode 5 Hardcover by Jack Porteous, Abdy Kermani – Import, 19 November 2007
T3. Principles of Structural Design Wood, Steel, and Concrete, by Ram S. Gupta, Third Edition, Published June 28, 2019.

Module Wise Text /Reference Books


Module 1: T1, T2	Module 2: T1, T3	Module 3: T2, T3		
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Syllabus for the Internal Assessment Tests

Test pattern	Questions will be set according to above syllabus and students should write for 50 Marks in 1 Hour 15 min., and will be converted to out of 5 Marks. Questions will be of descriptive type.
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ADD-ON COURSE		

AY: 2021-22

Department: Civil Engineering
Semester: VIII

Add-on Course Title: ENVIRONMENTAL GEOTECHNOLOGY

Course Contents (30 or more hours):

Theory: 30

Course delivery plan:

Blackboard/PPT

Evaluation:

Written Test: 50 marks

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To be reduced to marks out of 5

Evaluators

Prof. Parvati Oni

Prof. Rakesh J. Patil

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Add on course syllabus


Sub: ENVIRONMENTAL GEOTECHNOLOGY

Sl. No.	Syllabus details	No. of hours		BTL
		Theory	Lab	
1	Introduction: Scope of geo environmental engineering – Multiphase Behaviour of Soil –Role Of Soil In GeoEnvironmental Applications–Sources And Type Of Ground Contamination- Impact Of Contamination On Geoenvironment-Soil-Water-Contaminant Interaction -Soil-Water Interaction.	10	NIL	L2, L3
2	Management of Solid Wastes: Evolution Of Waste Containment And Disposal Practices Landfills-Engineered Landfills-Engineered Containment Landfills-Methods For Landfill Site Selection-Subsurface Investigation For Waste Management-Contaminated Site Characterization Assessment-Introduction to Advanced site characterisation.	10	NIL	L2, L3
3	Remediation of Contaminated Soils: Rational approach to evaluate and remediate contaminated sites – monitored natural attenuation – ex-situ and in-situ remediation – solidification, bio – remediation, incineration, soil washing, electro kinetics, soil heating, verification.	10	NIL	L2, L3
Total hours		30		

Reference books:

1. Wentz, C.A., Hazardous Waste Management, McGraw Hill, Singapore, 1989.
2. Daniel, B.E., Geotechnical practice for waste disposal, Chapman and Hall, London, 1993.
3. Fang, H.Y. Introduction to environmental Geo-technology, CRC press New York, 1997.
4. Lagrega, M.d., Buckingham, P.L., and Evans, J.C., Hazardous Waste Management, McGraw Hill, Inc.

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Semester: VIII

Year: 2021-22 (Odd/Even)

Course Title	Environmental Geotechnology	Course Code	
Total Teaching Hours	30	Teaching hours/week	02
CIA: 50	SEE:	Prerequisites	Environmental Engineering, Geotechnical Engineering
Course Plan prepared by	Prof. Parvati B. Oni	Approved by	

Course Outcomes

- CO1: Understand causes for soil pollution and behaviour of the pollutants.
- CO2: Understand the management of solid wastes
- CO3: Understand the Remediation of Contaminated Soils

CO's And PO's Mapping Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	H													
2	H													
3		M												

Text /Reference Books

Textbooks:

1. Wentz, C.A., Hazardous Waste Management, McGraw Hill, Singapore, 1989.
2. Daniel, B.E., Geotechnical practice for waste disposal, Chapman and Hall, London, 1993.
3. Fang, H.Y. Introduction to environmental Geo-technology, CRC press New York, 1997.
4. Lagrega, M.d., Buckingham, P.L., and Evans, J.C., Hazardous Waste Management, McGraw Hill, Inc. Singapore, 1994.

Module Wise Text /Reference Books

Module 1: T1, T2,T3	Module 2: T1, T2,T3	Module 3: T1, T2,T3
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Syllabus for the Internal Assessment Tests (Tentative)

IA Test-I: Module 1, Module 2, Module 3

Test pattern	Questions will be set according to above syllabus and students should write for 50 Marks in 1 Hour 15 min., and will be converted to out of 05 Marks.
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