



# DADI INSTITUTE OF ENGINEERING & TECHNOLOGY

(Approved by A.I.C.T.E., New Delhi & Affiliated to JNTUK, GV)

An Autonomous Institute

NH-16, Anakapalle – 531002, Visakhapatnam, A.P.

Phone: 9963981111, [www.diet.edu.in](http://www.diet.edu.in), E-mail: [info@diet.edu.in](mailto:info@diet.edu.in)

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## Circular

Anakapalle

Dt: 01-08-2023

Department of CIVIL Engineering is hereby informed that, in view of feedback received from III B.Tech CIVIL Students regarding skill enhancement and to improve the expertise of students in energy audit conservation & Management, HOD is advised to depute a faculty from CIVIL to design and develop a suitable course structure in line with basic concepts of Repair and Rehabilitation of Structures to III B.Tech Students with 30 working hours. Please ensure that this Add on course helps them to understand the basics of repairs and rehabilitation of structures. Make arrangements to deliver the course from next week onwards.

Principal

Dadi Institute of Engineering and  
Technology



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## **Department of CIVIL Engineering**

### **ADD ON COURSE**

SUBJECT: Repairs and Rehabilitation of Structures

Branch: CIVIL Engineering

Year: III Year

Batch: 2021-2025

AY: 2023-24

### **1) Why choose this Course**

Repair and Rehabilitation of Structures: Maintenance and Repairs Strategies. Maintenance Engineering is defined as the work done to keep the civil Engineering structures and work in conditions so as to enable them to carry out the functions for which they are constructed. It is preventive in nature.

### **2) Course Learning Objectives:**

**The objective of this course is:**

1. Familiarize Students with deterioration of concrete in structures
2. Equip student with concepts of NDT and evaluation
3. Understand failures and causes for failures in structures
4. Familiarize different materials and techniques for repairs
5. Understand procedure to carryout Physical evaluation of buildings and prepare report.



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- 3) Course Outcomes:** At the end of this course the student will be able to
- Explain deterioration of concrete in structures
  - Carryout analysis using NDT and evaluate structures
  - Assess failures and causes of failures in structures
  - Carryout Physical evaluation and submit report on condition of the structure.

**Dadi Institute of Engineering & Technology**  
Approved by AICTE & Permanently Affiliated to JNTU GV  
NAAC Accredited Institute & Inclusion under Section 2(f) & 12(B) of the UGC Act  
NH-16, Anakapalle, Visakhapatnam, Andhra Pradesh  
9963694444, 9963981111, [www.diet.edu.in](http://www.diet.edu.in), [info@diet.edu.in](mailto:info@diet.edu.in)

**Department of CIVIL Engineering**

Presents  
**A 30 days Training Program**  
on  
**“Repair and Rehabilitation of Structures”**

Module Period: (14-08-2023 to 21-09-2023)

**Course Instructor**  
**Mr M RVSG Gupta**  
Assistant Professor,  
Department of CIVIL

**Venue:**  
Lecture Hall 43, 5th Floor, DIET

#### About the Institute

Dadi Institute of Engineering & Technology is a top ranked Engineering and Management College affiliated to Jawaharlal Nehru Technological University, GV. The Institute is NAAC Accredited, ISO Certified and also associated with many professional bodies in the field of Engineering, Technology and Management. It strives to promote the highest standards among the students and enable them to Build a New World. Dadi Institute of Engineering & Technology is distinctive among institutions of higher learning. Founded in 2006 by Sri Dadi Venkabhadrappa Rao, an academicians and former Minister as the first multicultural and co-educational college in Anakapalle, which admits only academically promising students.

#### About CIVIL Department

The Department of Civil Engineering was established in the year 2011, with an annual intake of 60 students for B.Tech. Programme. Department also offers Diploma in Civil Engineering with an intake of 60 seats, which was established in the year 2013. The Civil Department is well equipped with spacious laboratories and experienced technicians. The department of Civil Engineering also offers various consultancy works. Apart from academic, the students get indulged in laboratory experiments with various consultancy works under the Civil Engineering Technology Association (CETA) Club Activities.

#### About the course

Students will be able to learn about Familiarize Students with deterioration of concrete in structures. Understand procedure to carryout Physical evaluation of buildings and prepare report Understand failures and causes for failures in structures Equip student with concepts of NDT and evaluation. At the end of this course the student will be able to a. Explain deterioration of concrete in structures.





## **Contents:(SYLLABUS)**

**Module - I Deterioration of concrete in structures:** Physical processes of deterioration like Freezing and Thawing, Wetting and Drying, Abrasion, Erosion, Pitting, Chemical processes like Carbonation, Chloride ingress, Corrosion, Alkali aggregate reaction, Sulphate attack Acid attack, temperature and their causes, Mechanism, Effect, preventive measures. - Cracks:Cracks in concrete, type, pattern, quantification, measurement & preventive measures.

**Module- II Non Destructive Testing-** Non destructive test methods for concrete including Rebound hammer, Ultrasonic pulse velocity, Rebar locator, Corrosion meter, Penetration resistance and Pull out test, Core cuttingCorrosion: Methods for corrosion measurement and assessment including half-cell potential and resistivity, Mapping of data. Civil Engineering 217

**Module-III Failure of buildings:** Definition of building failure-types of failures- Causes of Failures- Faulty Design, Accidental over Loading, Poor quality of material and Poor Construction practices- Fire damage - Methodology for investigation of failures-diagnostic testing methods and equipments-repair of cracks in concrete .

**Module: IV Repair Techniques:** Grouting, Jacketing, Shotcreting, externally bonded plates, Nailing, Underpinning and under water repair; Materials, Equipments, Precautions and Processes.

**Module: V Investigation of structures:** Distress, observation and preliminary test methods. Case studies: related to rehabilitation of bridge piers, dams, canals, heritage structures, corrosion and erosion damaged structures.



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## *Student List*

<b>DADI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY (An Autonomous Institute)</b>			
<b>DEPARTMENT OF CIVIL ENGINEERING</b>			
<b>Class : III B.Tech I Semester</b>			
<b>Students List</b>			
<b>S.No</b>	<b>Roll Number</b>	<b>Name of the Student</b>	<b>Branch</b>
1	21U45A0111	MUKKALI CHINA KAMESWARA RAO	CIVIL
2	21U41A0101	GANDI SIVARAMA KRISHNA	CIVIL
3	22U45A0101	ADARI SYAM SUNDAR	CIVIL
4	22U45A0102	AKKILISSETTY DINESH KUMAR	CIVIL
5	22U45A0103	BARNIKANA PAVAN	CIVIL
6	22U45A0104	BODDEDA DILEEP	CIVIL
7	22U45A0105	DESIREDDYGARI CHARAN TEJA	CIVIL
8	22U45A0106	DULLA ASWINI	CIVIL
9	22U45A0108	GORUSU JAI SANKAR REDDY	CIVIL
10	22U45A0109	JOGA MANIKANTA	CIVIL
11	22U45A0110	KANITHI BHASKARA RAO	CIVIL
12	22U45A0111	KODIBOYINA PRAVALLIKA	CIVIL



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13	22U45A0113	MINDI NAVEEN	CIVIL
14	22U45A0115	NADELLA MANISANKAR	CIVIL
15	22U45A0116	NIMMADALA VARAPRASAD	CIVIL
16	22U45A0117	PANAPANA HEMACHALAM	CIVIL
17	22U45A0118	PARUPALLI PAVAN	CIVIL
18	22U45A0119	PENTAKOTA CHANDRA MOULI	CIVIL
19	22U45A0120	SIMMA JAYANTH	CIVIL
20	22U45A0121	THAKASI DIVYAKANTH	CIVIL
21	22U45A0122	TITTI DEMUDU BABU	CIVIL
22	22U45A0123	VOMMI SRIRAMYA	CIVIL



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## 6) Time Table:

### OFFLINE Classes Schedule

Time Table for III B.Tech CIVIL - I semester- (2023-24) wef  
12/08/2023

Class Teacher – Mr.O Suresh Kumar(OMMI SURESH  
<[sureshommi@diet.edu.in](mailto:sureshommi@diet.edu.in)>-6303034527)

TIMINGS / DAY	09:00-09:50	09:50 to 10:40		11:00-11:50	11:50-12:40		1:30-02:20	02:20-03:10	03:10-04:00
MON	CTM	SA	10.40am to 11.00am BREAK	DDRCS	EM	12.40pm to 1.30 pm Lunch	DDRCS	EM	RRS-Addon Course
TUES	GTE-I	GTE-I		EM	CTM		EM	CTM	Mentoring
WED	CTM	SFW-II Lab		SFW-II Lab	SFW-II Lab		RRS-Addon Course	GTE-I	RRS-Addon Course
THUR	GTE-I	EM		SA	RRS-Addon Course		GTE-I	DDRCS	Sports/Library
FRI	DDRCS	SA		SA	RRS-Addon Course		SOC-II Lab		
SAT	DDRCS	GTE Lab		GTE Lab	GTE Lab		RRS-Addon Course	SA	CTM



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Sl.No	Sub Code	Subject Name	No of Periods	Name of the faculty
<b>THEORY</b>				
1		SA	5	Mr. Suresgh
2		DDRCS	5	Mr. B Sudheer
3		GTE-I	5	R Yernika
4		EM	5	M Guptha
5		CTM	5	Y.Hemanth

<b>LABARATORY</b>				
7		SFW -II		Y.Hemanth
8		GTE Lab		R.Yernika

9		Repair & Rehabilitation of Structures(RRS) - ADD ON Course	6	M RVSG Guptha
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Student Attendance Sheet - Repair and Rehabilitation of Structures Addon Course

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DEPARTMENT OF CIVIL ENGINEERING														
Class : III B.Tech I Semester														
Students List														
S.No	Roll Number	Name of the Student	Branch	5/9/22	7/9/22	8/9/22	9/9/22	10/9/22	13/9/22	14/9/22	15/9/22	16/9/22	17/9/22	
1	22U45A0111	MUKKALI CHINA KAMESWARA RAO	CIVIL	present	present	present	present	present	present	present	present	present	present	
2	22U41A0101	GANDI SIVARAMA KRISHNA	CIVIL	present	present	present	present	present	present	present	present	present	present	
3	22U45A0101	ADARI SYAM SUNDAR	CIVIL	present	present	present	present	present	present	present	present	present	present	
4	22U45A0102	AKKILISETTY DINESH KUMAR	CIVIL	present	present	present	present	present	present	present	present	present	present	
5	22U45A0103	BARNIKANA PAVAN	CIVIL	present	present	present	present	present	present	present	present	present	present	
6	22U45A0104	BODDEDA DILEEP	CIVIL	present	present	present	present	present	present	present	present	present	present	
7	22U45A0105	DESIREDDYGARI CHARAN TEJA	CIVIL	present	present	present	present	present	present	present	present	present	present	
8	22U45A0106	DULLA ASWINI	CIVIL	present	present	present	present	present	present	present	present	present	present	
9	22U45A0108	GORUSU JAI SANKAR REDDY	CIVIL	present	present	present	present	present	present	present	present	present	present	
10	22U45A0109	JOGA MANIKANTA	CIVIL	present	present	present	present	present	present	present	present	present	present	
11	22U45A0110	KANITHI BHASKARA RAO	CIVIL	present	present	present	present	present	present	present	present	present	present	
12	22U45A0111	KODIBOYINA PRAVALLIKA	CIVIL	present	present	present	present	present	present	present	present	present	present	
13	22U45A0113	MINDI NAVEEN	CIVIL	present	present	present	present	present	present	present	present	present	present	
14	22U45A0115	NADELLA MANISANKAR	CIVIL	present	present	present	present	present	present	present	present	present	present	
15	22U45A0116	NIMMADALA VARAPRASAD	CIVIL	present	present	present	present	present	present	present	present	present	present	
16	22U45A0117	PANAPANA HEMACHALAM	CIVIL	present	present	present	present	present	present	present	present	present	present	
17	22U45A0118	PARUPALLI PAVAN	CIVIL	present	present	present	present	present	present	present	present	present	present	
18	22U45A0119	PENTAKOTA CHANDRA MOULI	CIVIL	present	present	present	present	present	present	present	present	present	present	
19	22U45A0120	SIMMA JAYANTH	CIVIL	present	present	present	present	present	present	present	present	present	present	
20	22U45A0121	THAKASI DIVYAKANTH	CIVIL	present	present	present	present	present	present	present	present	present	present	
21	22U45A0122	TITTI DEMUDU BABU	CIVIL	present	present	present	present	present	present	present	present	present	present	
22	22U45A0123	VOMMI SRIRAMYA	CIVIL	present	present	present	present	present	present	present	present	present	present	

## 7) Photos





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## 8) Duration Of Course: 5 Weeks (30 Periods)

## 9) Exam paper:

NAME: M RVSG Gupta

DEPARTMENT: CIVIL Batch: 2021-2025

YEAR/SEM:III/I

Academic Year: 2023-24 Max Marks: 50

### Question Paper for Assessment

**SUBJECT: REPAIR AND REHABILITATION OF STRUCTURES (Add On Course)**

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**Answer any one question from each chapter  
(Weightage of Each Question 10 Marks)**



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## **UNIT-01 DETERIORATION OF STRUCTURES**

1. What is meant by deterioration of structures and mention causes.
2. What is the process of deterioration like freezing and thawing.

## **UNIT-02 NON DESTRUCTING TESTING**

1. Write a detail note about non destructive method for concrete structures
2. Explain the testing procedure of rebound hammer method clearly

## **UNIT-03 FAILURES OF BUILDING**

1. Definition of building failures and types of failures for in concrete structures
2. What are the different types of failures in Distressed building.

## **UNIT-04 REPAIR TECHNIQUES**

1. Explain concept of grouting technique for a cracked beam.
2. What is meant by jacking, short creating.

## **UNIT-05 INVESTIGATION OF STRUCTURES**

1. Write down the case study for rehabilitation for bridges piers
2. Write down the case study for rehabilitation for dams



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## Feedback reports



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An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute

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### STUDENT FEEDBACK FORM

Dear Candidate,

Your feedback is critical for the Institute to ensure that we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so that we can serve you better.

Title of the Activity: REPAIR AND REHABILITATION OF STRUCTURES

Date/Duration: 30 DAYS Instructor/Coordinator: MRVSG GUPTHA

1. The content was as described in Publicity Material	1	2	3	4	5	<u>5</u>
2. The program was helpful in practical understanding	1	2	3	4	5	<u>5</u>
3. I will recommend this course/workshop program to relevant conservators across our campus	1	2	3	4	5	<u>4</u>
4. The program was well placed within allotted time	1	2	3	4	5	<u>5</u>
5. The instructor was an effective communicator	1	2	3	4	5	<u>5</u>

*Feedback/Suggestions*

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5

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5

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4

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5

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5

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Please return this form to the Course Instructor/Organizer/Coordinator at the end of the workshop/add-on course/Training Program



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## 10) Course Completion Certificate

**Dadi Institute of Engineering & Technology**  
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**Course Completion Certificate**

THIS CERTIFICATE IS GIVEN TO

**JOGA MANIKANTA**

FOR SUCCESSFUL COMPLETION OF 30 DAYS COURSE ON  
TRAINING ON RRS FROM 14-08-2023 TO 21-09-2023

  
M RVSG Gupta  
Coordinator

  
Dr. R.VAIKUNTA RAO  
Principal

  
Sri Dadi Ratnakar  
Chairman

VISAKHAPATNAM, ANDHRA PRADESH, DIET.EDU.IN


**Dadi Institute of Engineering & Technology**  
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**Course Completion Certificate**

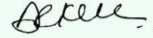
THIS CERTIFICATE IS GIVEN TO

**KODIBOYINA PRAVALLIKA**

FOR SUCCESSFUL COMPLETION OF 30 DAYS COURSE ON  
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M RVSG Gupta  
Coordinator

  
Dr. R.VAIKUNTA RAO  
Principal

  
Sri Dadi Ratnakar  
Chairman

VISAKHAPATNAM, ANDHRA PRADESH, DIET.EDU.IN