

TERNA PUBLIC CHARITABLE TRUST'S
TERNA ENGINEERING COLLEGE
Department of Civil Engineering

Report on
Software Training - Tekla

Enrolled Students
B.E. Civil Engineering
Academic Year:
2023-2024

Organized by
T&P Cell, Dept. of Civil Engineering, TEC
In Association with

Department of Civil Engineering, Nerul, Navi Mumbai



&

Confluence Trainings, Nanded.



2.0 About Institute

Terna Public Charitable Trust's Terna Engineering College is one of the well-known and it is located at Nerul, Navi Mumbai on a beautiful 3-acre campus. The institute is affiliated to University of Mumbai, approved by AICTE and accredited by National Board of Accreditation (NBA). This institution offers 7 UG, 4 PG, 3 PhD courses. Highest quality education is catered with curriculum extension by means of exceptional offerings like Engineering Products and Innovation Center (EPIC), Remote centre of IIT Bombay which facilitates student / faculty members to interact with IIT professors through video conferencing, Industry Institute Interaction Cell, Electronics club (collaboration with 25 local electronics SMEs), e-Yantra Embedded Systems and Robotics Lab, Apple lab, Texas Instruments Lab. We are a diverse, talented community united by passion for learning and quest for more. Terna motivates students to make a difference in our campus, in the state, country and around the world.

2.1 About Department:

The Department of Civil Engineering was established in the year 2017. The Mission of Department is to promote the disciplines of Planning, Design, Construction, Operation, Maintenance and Research. It offers students technical knowledge with technique for better utilization of available resources and greater standardization of construction processes required by construction industry. We intend to develop students by giving training to make use of innovative design methods, techniques and practical implementation. Highly qualified and dedicated faculty are recruited and they are always on their toes to guide the students, form the backbone of the department.

Key Features:

- Well Equipped Laboratories – Materials and Concrete Technology, Geotechnical Engineering, Environmental Engineering, Transportation Engineering, Engineering Geology, Civil Computer Laboratory, Surveying Laboratory, Hydraulics and Fluid Mechanics Laboratories
- Consultancy Services Offered and Fully Equipped with Major Facilities Like Fully Automatic Compression Testing Machine 2000 kN (NABL Accredited), Fully Automatic Universal Testing Machine (UTM 100 Ton- NABL Accredited), Fully Automated Total Station for Professional Surveying
- Consultancy Services Offered for Non-Destructive Testing

- Faculties with Experience in Design and Execution of Residential, Commercial, Oil & Gas, Power Projects
- Faculties with Experience in Research in the Field of Smart Materials & Smart Structures, Pavement Design & Analysis, Geotextile Materials for Soil Stabilization, Geotechnical Engineering, Remote Sensing & GIS
- Active Mentoring Processes for Continuous Assessment in Academics
- Learning Experience Through Active Consultancy Projects
- Industrial Visits-CIDCO, PWD, MMRDA, Rock Museum Nasik
- Internship for Students (With & Without Stipend)
- International Students Chapter Association & Merit Scholarships
- Expert Lectures by Industry Experts
- NPTEL Courses
- Skill Based, Project Based Learning, Interactive and Interest Based Core Domain Learning
- Patents, Designs and Copyright Development
- Achieved 100 % students intern during winter vacations (2019-2020) in renowned organizations like Airport Authority of India (AAI), Public Work Department (PWD), City and Industrial Development Corporation (CIDCO), Rashtriya Chemical Fertilizers (RCF), American Concrete Institute and so many.

3.0 About Course

An add on course of training of Tekla software has been introduced by the Department of Civil Engineering, Tema Engineering College, Navi Mumbai for B.E (Civil) students. This course is beyond their regular syllabus. This will be beneficial to students for their project work and ready for industry. Duration of course will be 40 hrs.

4.0 About Consultancy

Confluence Training Initiative (CTI) was started in year 2021 with aim of providing affordable access to high-quality training in civil engineering. With a very small and highly experienced team we have conducted multiple training programs in Pune & Mumbai and planned to keep on serving in the future. Following are some key features of our *add-on* training programs.

- ✓ Experienced resource personnel.
- ✓ Project based learning assignment on real life projects.
- ✓ Free additional online learning courses on Tekla.
- ✓ Traceable certificates with QR codes to curb forgery and more.

5.0 Schedule

SCHEDULE FOR TEKLA TRAINING PROGRAM			
Date	Day	Time	Module
23-April-24	Tuesday	9.00 AM to 1.00 PM	Module No. 1
24- April-24	Wednesday	9.00 AM to 1.00 PM	Module No. 2
25- April-24	Thursday	9.00 AM to 1.00 PM	Module No. 2
26- April-24	Friday	9.00 AM to 1.00 PM	Module No. 3
27- April-24	Saturday	9.00 AM to 1.00 PM	Module No. 3
29- April-24	Monday	9.00 AM to 1.00 PM	Module No. 4
30- April-24	Tuesday	9.00 AM to 1.00 PM	Module No. 4
01- May-24	Wednesday	9.00 AM to 1.00 PM	Module No. 5
02- May-24	Thursday	9.00 AM to 1.00 PM	Module No. 5
03- May-24	Friday	9.00 AM to 1.00 PM	Module No. 5

6.0 Syllabus

Module	Course contents	Hours
1	Introduction to Tekla structure	2
	Applications, feature, advantages over other CAD tools and limitations	
2	Basic Modeling Techniques	10
	Modeling of various joints: Beam Column Joints of various types. Modeling of Tapered sections beams. Modeling of Base plates.	
3	Drawing and Output	10
	Numbering and reports, Principles of working with drawings, Creating General Arrangement Drawings, Creating Assembly Drawings, Creating Single Part Drawings and Multi Drawings and multi numbering etc.	
4	Detailing of steel warehouse	8
	Creation of: Grids, rafters, Purlins, rafter end connections, Base plate, Pad Footing, Cladding Gutters etc.	
5	Introduction to Concrete Modeling	10
	Isolated Footing generation part, Creation of piles in Tekla, Creation of strip footings in Foundation with Tekla, Creation of Slab and discount of materials in Tekla, Creation of Structural	

	Columns in Tekla, Creation of concrete beams in Tekla and Rebar modelling	
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7.0 Course Objective & Course Outcome

After completion of the course the student will be able to model and design connection details in Tekla.

7.1 Course Objective

1. Understand various commands in Tekla software
2. Model the structure in Tekla
3. Understand different types of connection (Bolted & Welded)
4. To produce fabrication drawings
5. Understand the fabrication drawing and bill of quantities

7.2 Course Outcome

On completion of this course, the students will be able to

1. Model the structure in Tekla
2. Design connection details
3. Understand fabrication drawings
4. Produce bill of quantities

7.3 Program Outcome

PO 1: - Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: - Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO 3: - Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: - Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: - Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: - The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: - Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: - Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: - Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: - Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: - Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: - Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcome

PSO 1: - Graduates will be able to plan, analyze, design and drawing and estimate for residential, commercial, industrial and infrastructure projects. They will be able to work on site for supervision of various construction activities.

PSO 2: - Graduates will be able to use different software related to Civil Engineering for developing skills required by the industry.

8.0 CO, PO & PSO Mapping

Module	Course contents	CO	PO	PSO
1	Introduction to Tekla structure	1	1,2,5,9,11,12	1,2
2	Basic Modeling Techniques	1,2	1,2,3,4,8,9, 11,12	1,2
3	Drawing and Output	3,4	1,2,3,9,10, 11,12	1,2
4	Detailing of steel warehouse	2,3	1,2,3,4,5,6,7, 8,9,10,11,12	1,2
5	Introduction to Concrete Modeling	1,2,4	1,2,3,9,10, 11,12	1,2

13.0 Sample Certificates

