STRUCTURE

ENGINEERING CONSULTING TRAINING

Master certification in

Computational Bridge Information Modeling & Management

Live
6 Months

10+ live
Project

5+ Core
Industrial
Software

STRUCTUREX PVT. LTD.

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INTRODUCTION

we are designer engineer architecture planner technical specialists and trainer. we operate in the innovation and revolutionary changing field of designer and engineering construction installation and infrastructure educational services rank top in relate with civil/structure/infrastructure

We have a global community of engineers, technician and expert to deliver quality of training and services

community of 10000+ and still counting Our trainee are from South east Asia Europe, Australia and UAE.

Our corporate training program and engineering educational services ranked top in INDIA and all over the world by most recognized organizations. We provide courses relate with civil/structural/ infrastructure engineering.

BRIM(Bridge Information Modelling/Management) & Technology

is a full flange training program which enable you to carrier in different technical positions due to technical advancement in design and engineering worldwide professional qualification are not satisfying current MNC company job demand so structurex department of corporate training design this course for professional, fresh Graduate and Technical Specialist. Real challenge for Engineers and technical specialist are increasing day by day due to project complexity and environment factor by adapting data driven technology this course enable you to accept that challenges

BRIM (Bridge Information Modeling/Management)

is the holistic process of creating and managing information for a built asset. Based on an intelligent model and enabled by a cloud platform, BRIM integrates structured, multi-disciplinary data to produce a digital representation of an asset across its life cycle, from planning and design to construction and operations..

Intelligent 3D/4D/5D/6D Bridge Model : A BRIM Model consist of all data related to Project Construction, 3D Model (Material Section and size) this model can further Process and used for 4D and 5D (Costing and estimation) with their all engineering detailing, drawing sheets and Project Report. The model can be used by the all Professional either Engineer or Technician.

STRUCTUREX Pvt. Ltd. Online program learning providing best project based and career oriented training to fresher and experienced engineer. We focus on core and latest technological approach to provide best career oriented training. Quality management and critical engineering is our backbone. Fresh collage graduate have a great opportunity to start career and get placed in their desire company, **With our PGD, MASTER and SKILL Certification Program.**

Online training Process

Interview and offer letter

⬇

Personal coaching

⬇

Group formation

⬇

Online learning management

⬇

Technical setup

⬇

Conceptual and theory

⬇

National & International environment

Software and tools traning

⬇

Technical workshops

⬇

Project Training

⬇

Assessment

⬇

Certification

⬇

Career Assistance & Placement

EXCLUSIVE CAREER SUPPORT

STRUCTUREX provide a life time career assistance to ensure candidates success and getting Placed.

Live Career-Oriented Webinars

Live webinar sessions that include curriculum and career services walkthrough to help learners understand their learning objective and expectations of hiring managers.

Leadership Skill Development Sessions

Recurring training sessions with experts to help learners develop Interpersonal and Leadership Skills.

1-on-1 Career Mentoring Sessions

One-on-one Career Mentoring sessions on how to develop the right skills and attitude to secure a dream job.

Exhaustive Interview Preparation

Expert tips, sample interview questions, mock interviews with constructive feedback from industry experts to gain hands-on experience of technical rounds , HR round, and more.
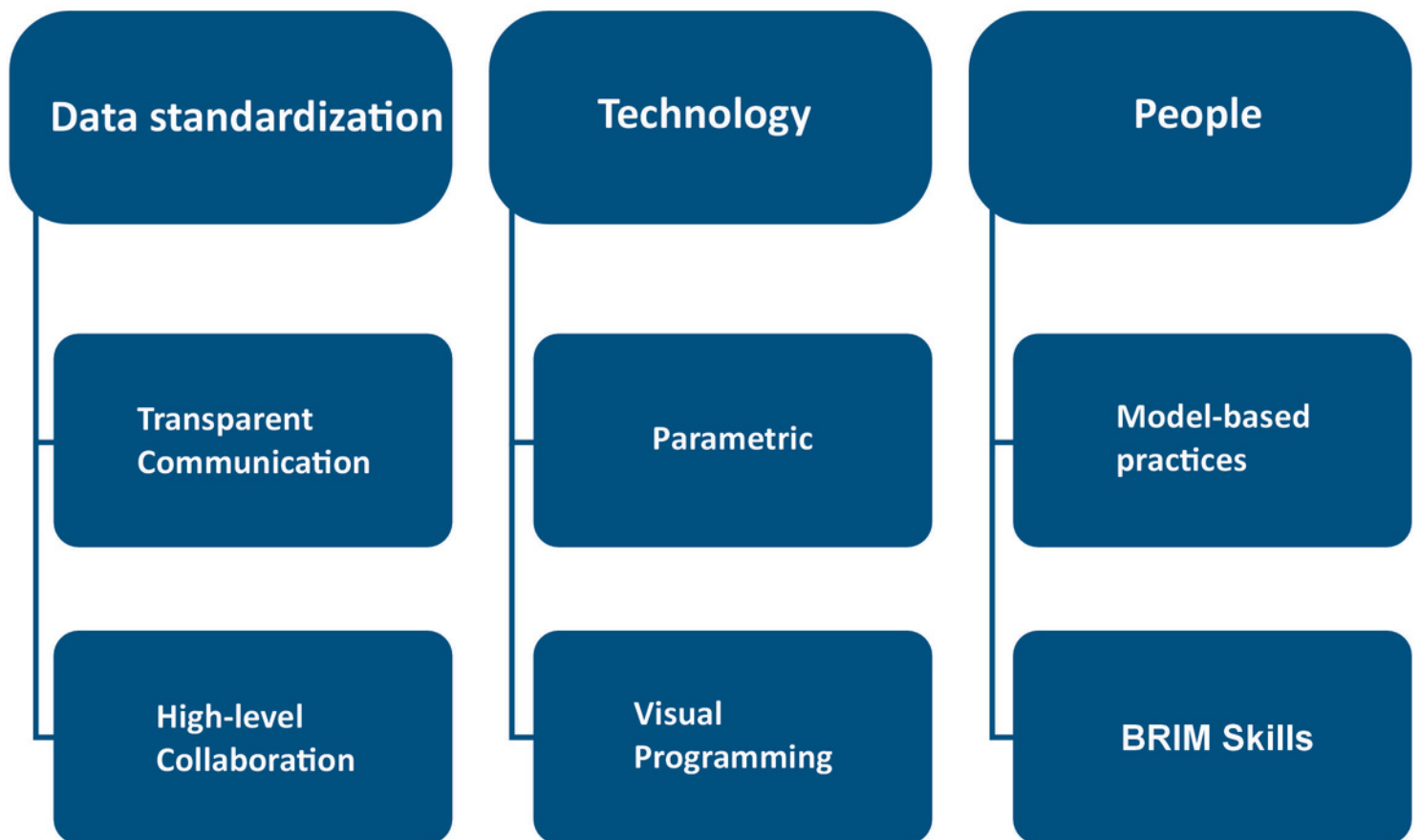
Job Search Assistance & Job Feeds

Access to multiple job portals to help learners navigate through thousands of jobs including global remote jobs.

Profile Building Assistance

A dedicated Career Coach will provide expert tips on how to create an attractive , relevant resume and LinkedIn Profile.
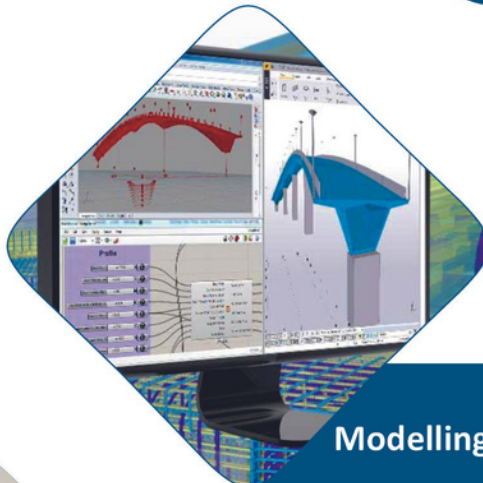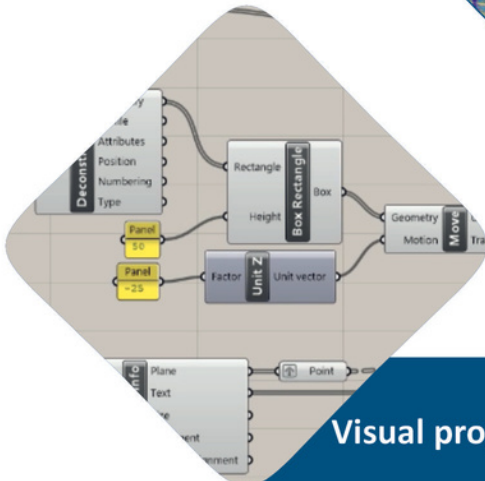
BRIDGE INFORMATION MODELING (BRIM)

Data standardization	Technology	People
Transparent Communication	Parametric	Model-based practices
High-level Collaboration	Visual Programming	BRIM Skills

PARAMETRIC MODELING PROCESS

Output model

- **Better Control on Model**

Modelling Software

- **Tekla structure**

Visual programming

- **Rhino 3D + Grasshopper**

Parametric is a term used to describe a dimension's ability to change the shape of model geometry as soon as the dimension value is modified.Feature-based is a term used to describe the various components of a model. For example, a part can consists of various types of features such as holes, grooves, fillets, and chamfers. A 'feature' is the basic unit of a parametric solid model.
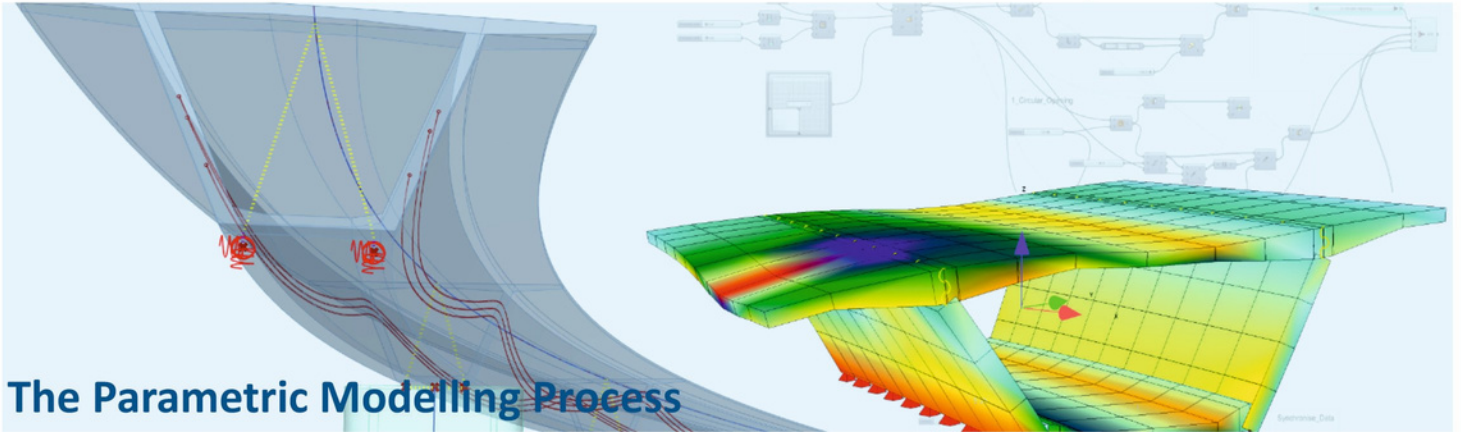
The Parametric Modelling Process

Parametric models are built from a set of mathematical equations. For parametric models to have any legitimacy, they must be based on real project information. It is the modernity of the information examination techniques and the breadth of the hidden undertaking information which decides the viability of a modelling solution. There are two popular parametric representation models.

Constructive Solid Geometry (CSG)

CSG defines a model in terms of combining basic (primitive) and generated (using extrusion and sweeping operation) solid shapes. It uses Boolean operations to construct a model. CSG is a combination of 3D solid primates (for example a cylinder, cone, prism, rectangle or sphere) that are then manipulated using simple Boolean operations.

Boundary Representation (BR)

In BR, a solid model is formed by defining the surfaces that form its spatial boundaries (points, edges, etc.) The object is then made by joining these spatial points. Many Finite Element Method (FEM) programs use this method, as it allows the interior meshing of the volume to be more easily controlled.

Advantages

These are the benefits offered by 3D parametric modelling over traditional 2D drawings:
- Capability to produce flexible designs
- 3D solid models offer a vast range of ways to view the model
- Better product visualization, as you can begin with simple objects with minimal details
- Better integration with downstream applications pand reduced engineering cycle time
- Existing design data can be reused to create new designs
- Quick design turnaround, increasing efficiency

What is BRIM?

The infrastructure industry is embracing digitalization to keep up with future innovations and become more productive under the growing pressure of increasing costs, tight deadlines and sustain ability issues. Building Information Modelling (BIM) has become a widely used tool for engineers and construction companies to improve the level of design and construction information, reach higher levels of collaboration and streamline project delivery all the way to facility management. Now, its sibling known as BrIM (Bridge Information Modelling) is paving the way for the practice to establish itself in bridge building. Bridge Information Modeling (BrIM) boosts the quality of design with accurate information, consistent documentation, and improved construct ability of structures. BrIM allows for accurate pre-fabrication and just-in-time material deliveries, and supports project collaboration across disciplines.

Firstly: BrIM is about data standardization

Transparent communication and high-level collaboration are the key drivers for both BIM and BrIM. Making the most out of the tools requires standardization. Standardized information can be used and kept in usable format when forwarded in the process which helps to integrate the project stages.

Secondly: BrIM is about technology

BIM and BrIM can be connected to other modern technologies, such as 3D printing, autonomous construction, big data analysis, augmented reality and vitalization, the Internet of Things (IoT), wireless monitoring, and cloud and real-time collaboration.

Most of all: BrIM is about people

The BRIM transformation is streamlining processes and developing corporate cultures toward model-based practices. However, the most important (and probably most challenging) aspect is to take care of people in the transformation. Change management and building BIM skills throughout the value chain are essential. There is a concerning lack of skilled BIM users hindering project deliveries in countries where the construction industry is booming.

Sharing is caring about collaboration efficiency

As large bridge projects comprise various stages from planning to operation and decommissioning, BrIM can allow for significant process improvements. For example, construction-ready design work reduces construction costs and improves quantity take-offs.

The contractible bridge model enables, among other things

- 3D visualization
- Planning of scaffolding
- Formwork and concrete pours
- Virtual assembly
- Automated machine control, and
- Smart inventory.

Module: 01 Basic of bridge engineering

Duration: 20 hour

1. Introduction to Bridge geometry and form,

2. Different type of bridges,

3. Bridge Terminology,

4. National and International environment (code) specification for Bridge design and geometry

Case study of different existing iconic bridge worldwide,

5. Technology approach,

6. Tools and software used in bridge engineering.
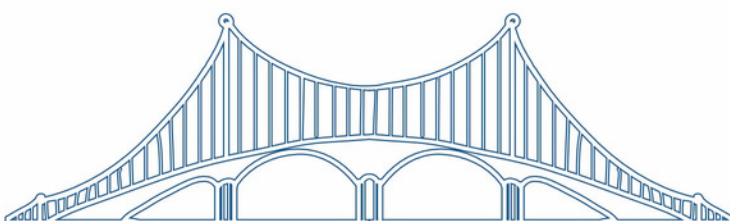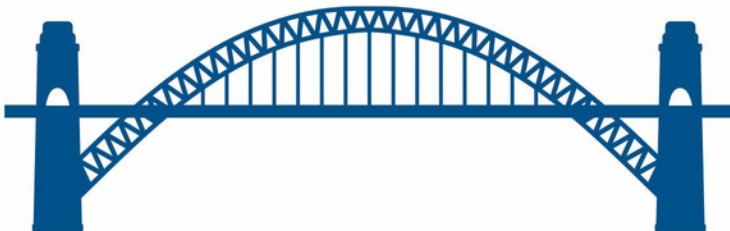
Module: 02 Bridge Information modelling (BrIM)

Duration: 60 hours

Understanding interface of Tekla Structure and using their tools
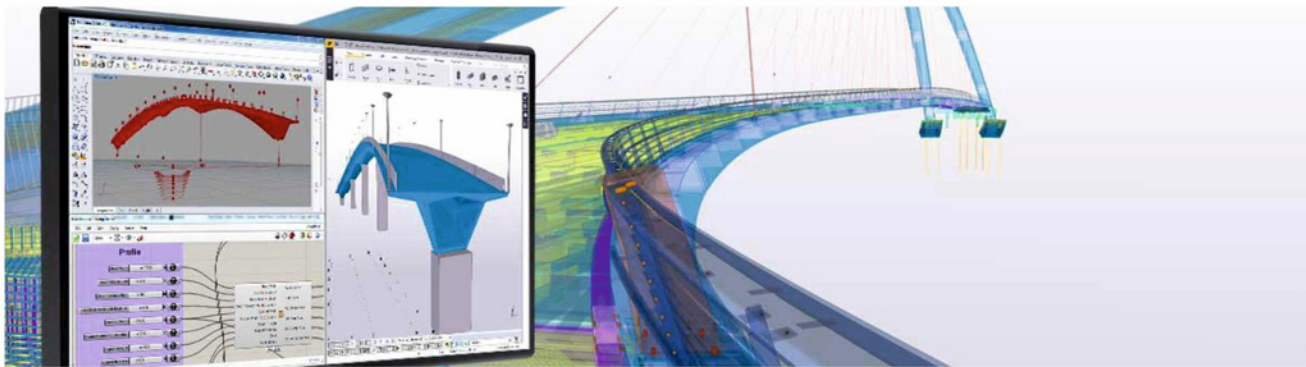
Edit: Grid, Point, Construction Object, Batch Editor, Copy and Move Command, Measure, Poly cut, Line Cut, Part Cut, Fit part End, Split, Combine, Chamfer Edge, Views, Creating Views, Working with views, Different type of views, Clip Plane, Work Area, Render all view, Erase Temporary Graphic, Different work plane, Rendering, Visualizer, Switch to3D or plane.

Navigation: Rotate with mouse, set view point, Pan, Screenshot

Steel Framing: Column, section properties, Beam, Problem, Curved Beam, Twin profile, special beam, plate, creating bent

Bolt: Bolt modelling profile

Weld: create weld b/w point, create polygon weld, Assembly

RCC Framing: Column beam, Panel, Slab, Footing, Item, Cast Unit, Reinforcement

Application and Component : Precast, Steel Detailing, Reinforcement Detailing, Define custom component, Import custom, Edit Custom Component

⬢ **Bridge Model Creating**
⬢ **RC Bridge**
⬢ **Steel Bridge (truss)**
⬢ **Cable stay bridge**
⬢ **Box culvert**
⬢ **Suspension Bridge**
⬢ **Pre-cast**

Bridge Creator, Beam Extruder, Main Bar, Cross Bar, Strip, Slab.

Drawing and Report: Document Manger, Drawing Properties, Fabrication, GA Drawing, Master drawing catalog, Numbering, Multi drawing, Number setting, Report.

Management: Manage, Organizer, Phase, clash check, Connect IC Object, Layout manager, Task, Sequencer, Lofting, Project statement, Import, Export, Sharing, Project Properties, Setting, Catalogs, Editors, Logs.

Rhino3D and Grasshopper:

Grasshopper is a visual programming language and environment that runs within the Rhinoceros 3D computer-aided design (CAD) application. The program was created by David Rutten at Robert McNeel & Associates. Programs are created by dragging components onto a canvas. The outputs to these components are then connected to the inputs of subsequent components. Grasshopper is primarily used to build generative algorithms, such as for generative art. Many of Grasshopper's components create 3D geometry. Programs may also contain other types of algorithms including numeric, textual, audio-visual and haptic applications. Advanced uses of Grasshopper include parametric modelling for structural engineering, parametric modelling for architecture and fabrication, lighting performance analysis for eco-friendly architecture and building energy consumption.

Grasshopper + Tekla structure model creation (Any 2 of following)

- Road Bridges
- Slab Bridges
- Tee Beam Bridges
- Box Girder Bridges
- Prestressed Concrete Bridges
- Bearings and Substructures
- Beam or box girder bridges
- Truss bridges
- Arch or Tied arch bridges
- Cantilever bridges
- Suspension bridges
- Cable-stayed bridges
- Underpasses or box culverts

Live Project

● Four Lining divided Project Highway of Existing Dimapur – Kohima Road on EPC basis starts from design km. 152.210 to km. 166.735 (Design Length 14.525 Kms)
(Existing km. 156.000 to km. 172.900, Length M16.900 Kms) of NH 39 (New No. is NH – 29) in the state of

● Construction of new link nh-133b from km: 0.20 in Jharkhand to km: 15.885
including ganga bridge and construction of Manihari bypass from 0.00 to 5.50,

● Bullet Train Project (Mumbai to Ahmedabad)

Case Study

1. ALAMILLO BRIDGE

Location: Seville, Spain
Engineer: Santiago Calatrava
Start: 1987
Completion: 1992
Type: Cable-stayed bridge
Material: Concrete
Length: 655ft

2. ZAKIM BUNKER HILL BRIDGE
Location: Boston, MA
Engineer: Christian Menn
Start: 1997-
Completion: 2003
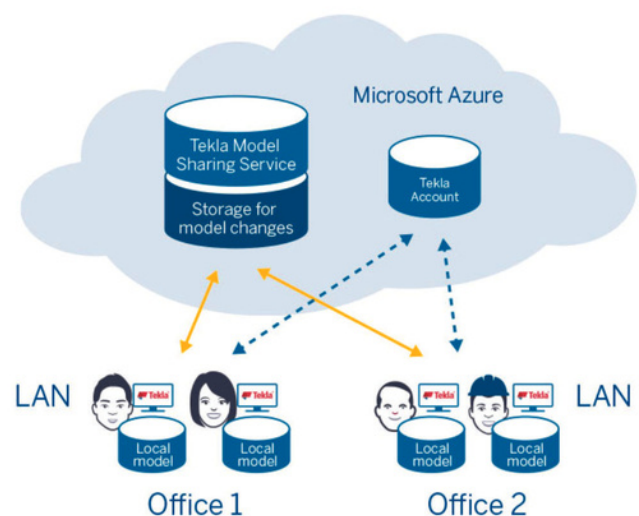Type: Cable-stayed
Material: Steel
Length: 745 ft

After compilation of modeling and detailing of Bridge structure and their component, engineers need to submit lots of file, reports.

- Structural designs scope, GSN (General Structural Notes) & Specifications understanding
- Architectural design & other trades understanding
- AISC Construction Manual understanding
- RCSC-2014-Bolted joint specifications
- AWS D1.1, D1.8, A2.4 Understanding
- RFI & Erection note understanding
- Software's 3D modeling capability
- 2D Erection Drawing presentation skill
- Digital output understanding (PDF, DXF, IFC,)
- Effective Client communication via E-mail & phone
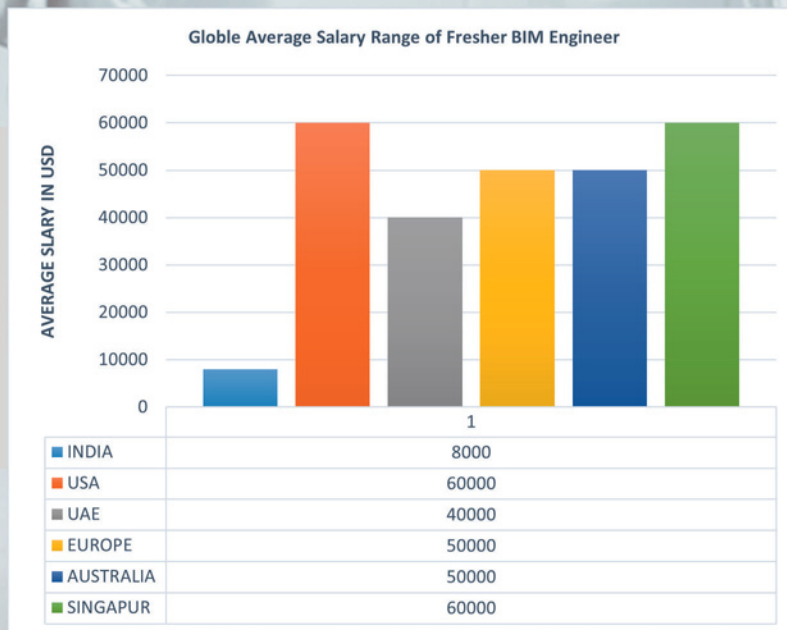- Proof Checking

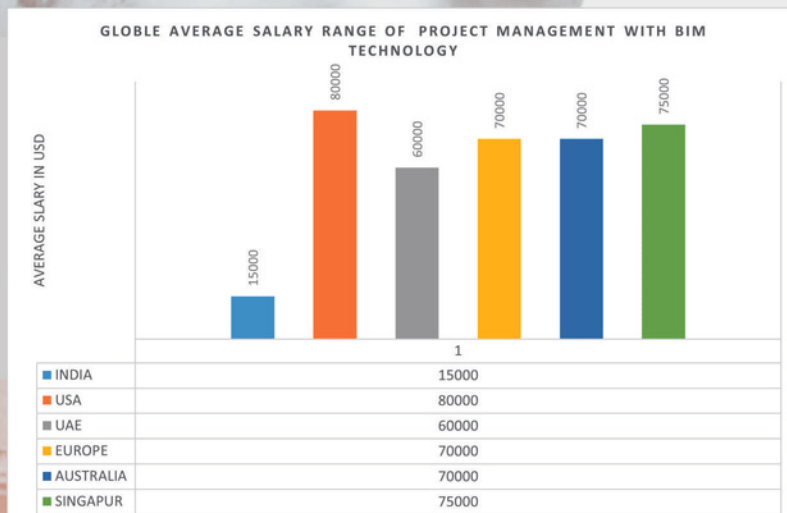**Project Presentations**

Cloud data sharing

Team collaboration

CAREER PROSPECTIVE

BRIM Engineer

Globle Average Salary Range of Fresher BIM Engineer

INDIA	8000
USA	60000
UAE	40000
EUROPE	50000
AUSTRALIA	50000
SINGAPUR	60000

BRIM Manager

GLOBLE AVERAGE SALARY RANGE OF PROJECT MANAGEMENT WITH BIM TECHNOLOGY

INDIA	15000
USA	80000
UAE	60000
EUROPE	70000
AUSTRALIA	70000
SINGAPUR	75000

Global Hiring Company

ARUP	ATKINS Member of the SNC-Lavalin Group	TATA TATA CONSULTING ENGINEERS LIMITED	Stantec
WSP	Kimley»Horn Expect More. Experience Better.	kpff	Balfour Beatty Construction
Honeywell	RAMBOLL	FLUOR	BECHTEL
INTEGRAL	COWI	MOTT MACDONALD	Shapoorji Pallonji
SKANSKA	ARCADIS Design & Consultancy for natural and built assets	Jacobs	VINCI

ADMISSION PROCESS

📝 Enrolment Form

A one-on-one chat with our SME to understand your basic knowledge, prior work experience, and your expectations from the course. After your interview assessment,

📋 Interview and offer letter

A one-on-one chat with our SME to understand your basic knowledge, prior work experience, and your expectations from the course. After your interview assessment, you will receive an offer letter from us.

💵 Payment

Based on your interview performance, you would receive an offer letter and an fee payment as per option choosed

👥 Batch Allotment

After the payment formalities, you will be given course credentials and your learning journey will begin!

Key Features:

1. Mode of Program: Online Live
2. Platform : Zoom Meeting
3. Duration: 06 Month
4. Recording of live class
5. Access of E-Liberary
6. 1 Year access of www.structurex.online for learning

Eligibility

Diploma/Bachelor/Master/PHD in civil engineering or relevant work experience in AEC Industry

Program Fee:

INR 64,900 (55,000+18% GST)

Other then Indian & African subcontinent : USD 1,000/-

Contact Us:
For further details, please reach out to:
+91-9354-7349-46
info@structurex.live
www.structurex.live

SAMPLE CERTIFICATE

STRUCTURE X
ENGINEERING CONSULTING TRAINING

1st September 2022

This certifies that

Mr. M.K Arora
has successfully completed
Master Certification Program In

COMPUTATIONAL BRIM
(Bridge Information Modeling/Management)

A Program that include 3D/4D/5D Modeling/Management of Bridge to operate digitally

from period of March 2022 to Aug. 2022

SEAL
STRUCTUREX PVT. LTD.
CORPORATE TRAINING

_____
Program Director

_____
Program Coordinator

Certificate Id:
MS-23658-208
www.structurex.live/verify/