

REVIT IN ARCHITECTURAL AND STRUCTURAL MODELING

By:

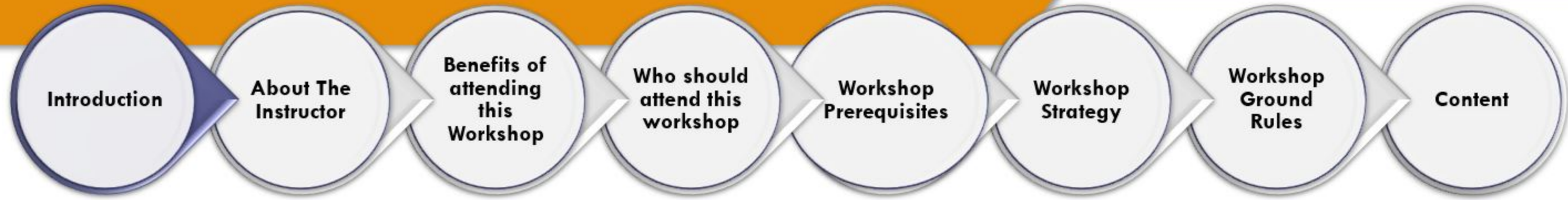
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Projects Control Engineer

PMP, M.Sc., ACI Arb, CLAC, Ph.D. (Cand.)

Teaching Assistant





INTRODUCTION

As the number of engineers in the construction field has substantially increased recently, it is important for engineers to improve their skills to be able to compete and to provide something different than others.

In this workshop we aim to improve the practical skills in modeling of engineers by introducing the concept of the modeling by a practical assignments and mentoring during our 9 weeks.

A project will be assigned at the end of the workshop to ensure that all the discussed knowledge and methods are integrated and well understood by all attendees.

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About The Instructor

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Who should attend this workshop

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ABOUT THE INSTRUCTOR

- **Experience**

Current Position: Projects Control

Previous Position: Planning and Cost Control Team Leader

Senior Planning and Cost Control

BIM Modeling Engineer

Site Planning Engineer

Value of Projects: Above 30 Billion EGP

Experience Fields: Planning & Scheduling

BIM

Risk Management

Contracts

EOT Claims

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ABOUT THE INSTRUCTOR

- **Professional Certifications**

- ✓ Project Management Professional (PMP)
- ✓ CLAC 030 - FIDIC Contracts, Interpretive Case Oriented Approach
- ✓ CLAC 040 - Claims and Disputes in the Construction Industry
- ✓ ACIArb

- **Academic Experience**

- ✓ Teaching more than 1200 students in engineering universities
- ✓ Supervisor of many graduation projects in project management and BIM

- **Academic Qualifications**

- ✓ Ph.D. Student
- ✓ Master of Science M.Sc.
- ✓ Bachelor of Civil Engineering (B.Sc)

PUBLICATIONS



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PUBLICATIONS

JAUES

Journal of Advanced Urban Engineering



OPTIMIZATION OF REPETITIVE PROJECTS SCHEDULING IN CONSTRUCTION: ANALYSIS FOR THE STATE-OF-THE-ART METHODS

Mostafa Sakr^{1*}, Mohamed Abdel-Monem¹, and Karim El-Dash¹

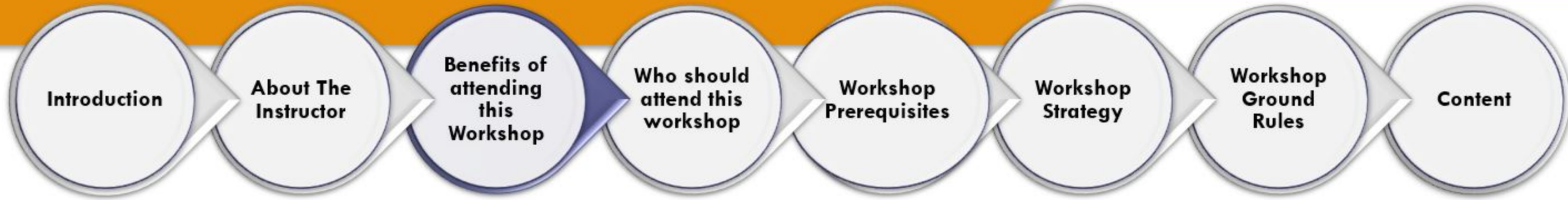
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ABSTRACT

Construction projects which involve multiple similar units and a set of activities that is repeated in these units are known as repetitive projects. Repetitive projects optimization is crucial for the project to succeed and to achieve its objectives. As a result, several optimization methods have been developed to satisfy several optimization objectives. These methods usually consider the most important constraints and factors that can impact the repetitive project schedule. These methods can be grouped into three groups: mathematical, heuristic, and metaheuristic methods. This paper investigated the developed methods to identify their objectives, implications, main features and limitations. The most important constraints that may affect repetitive projects were also examined to be used in further optimization models. A quantitative analysis for the developed methods is also addressed in the paper. On the basis of this work, implications and guidelines for future research are addressed to enhance repetitive projects optimization and to cover the current unresolved problems.



BENEFITS OF ATTENDING THIS WORKSHOP

- Learn modeling skills in structure and arch using Revit
- Know the concept of every task you do
- Improving the skills of using Revit
- Saving time and effort to do modeling tasks
- Be qualified to start your career as Revit Modeling engineer or freelancer

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WHO SHOULD ATTEND THIS WORKSHOP

- Site and office engineers who are aiming to improve their skills to enhance their careers as modeling engineers.
- Students who are aiming to improve their knowledge to start their careers as modeling engineers.

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WORKSHOP PREREQUISITES

- Just basic knowledge of how to read CAD drawings



WORKSHOP STRATEGY

- Providing detailed elaboration of the concept.
- Providing live practical implementation of the elaborated concepts.
- Providing tips and tricks of Revit during the sessions.
- Providing assignments in each session and final project in the final session to be done by the course attendees to ensure their understanding and their practical implementation ability.

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WORKSHOP GROUND RULES (**OUR CONTRACT**)



- MICs to be muted by host & Cameras to be turned off
- MICs will be unmuted & questions will be allowed after certain milestones in each session
- The last 30 minutes of each session is for questions & discussions
- If anything is not clear during explanation, “raise hand” it will be repeated and elaborated in more details
- Questions will be answered either in the session, in the WhatsApp group, or in the coming session
- The sessions will be recorded & provided
- All recorded sessions and course materials are for the attendees use only (not for distribution)

WORKSHOP CONTENT



CONTENT

Revit in architectural and structural modeling

- 1. Introduction to BIM and Autodesk Revit
 - BIM and Autodesk Revit
 - Overview of the Interface
 - Starting Projects
 - Viewing Commands
- 2. Basic Sketching and Modify Tools
 - Using General Sketching Tools
 - Inserting Components
 - Selecting and Editing Elements
 - Working with Basic Modify Tools
 - Working with Additional Modify Tools
- 3. Starting Projects
 - Linking and Importing CAD Files
 - Linking in Revit Models
 - Setting Up Levels
 - Copying and Monitoring Elements
 - Coordinating Linked Models
 - Batch Copying Fixtures
- 4. Working with Views
 - Modifying the View Display
 - Duplicating Views
 - Adding Callout Views
 - Creating Elevations and Sections
- 5. Developing Structural Model
 - All Types of Foundations
 - All Types of Slabs
 - Columns
 - Beams
 - Walls
 - Steel Structures
- 6. Modeling Steel Rebars
- 7. Creating Families

CONTENT

Revit in architectural and structural modeling

- 8. Drawing Architectural Elements
 - Masonry
 - Plaster
 - Painting
 - Gypsum Boards
 - All types of tiles
 - Façade Works
 - Glasses
 - Aluminum
- 9. Creating Families
- 10. Quantity Surveying
- 11. Modeling of MEP Systems (Plumbing – HVAC – Electrical – etc)
- 12. Creating Construction Documents
 - Setting Up Sheets
 - Placing and Modifying Views on Sheets
 - Printing Sheets
- 13. Annotating Construction Documents
 - Working with Dimensions
 - Working with Text
 - Adding Detail Lines and Symbols
 - Creating Legends
- 14. Adding Tags and Schedules
 - Adding Tags
 - Working with Schedules
- 15. Creating Details
 - Setting Up Detail Views
 - Adding Detail Components
 - Annotating Details
- 16. Visualization and Rendering

