OPERATIONS RESEARCH

Welcome to Operations Research

پژوهش‌های عملیاتی
Agenda

- About Emad Elbeltagi
- Structure and Delivery
- Assessment
- Ground Rules
- About Operations Research
- What does Make it Important?
- Software Packages
- Mission Statement

About Emad Elbeltagi

- Professor of Construction Management
- Professional Engineer
- Website: http://osp.mans.edu.eg/elbeltagi
- Email: eelbelta@mans.edu.eg
- eelbelta@yahoo.com
- Room B241
- Office hours: Saturdays 12:00-1:30 PM
  Tuesdays 1:00-2:30 PM
- All lecture slides, assignments, Notes will
  be posted on the web site shown above
About Emad Elbeltagi

Professor of Construction Management
Professional Engineer

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structure and Delivery

- Lectures: Every Tuesday @ 11:00 AM
- Tutorials: Every Sunday @ 1:00 PM
- 3 Hrs credit
- Dr. Mahmoud Dawood will be delivering the tutorials
- Students are expected to attend both lectures and tutorials
- All lecture slides, assignments, Notes will be posted on the web site shown before

Resources

- The World Wide Web (www)
- Library books
- Course notes
- Most key documents will be available electronically.
**Assessment**

- Class Attendance/Performance; Assignments; Quizzes, etc. 30%
- Midterm 20%
- Students are expected to Write about 6 assignments this term
- 4-quizzes (short exams) during the lecture without prior notice
- Final exam (50 %)

**Ground rules**

- Coming in late
- Disruption of any kind
- Don’t ask for an extension without good reason
- Individual work only is allowed, Group discussions for concepts and problems
- Don’t copy previous year work
- When confused ask instructor
- Academic honesty
**Ground Rules**

*Cell Phones are strictly prohibited*

*Please, Don’t bring your cell to the lecture or keep it always closed*

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**So…!**

*What about operations research?!*
About Operations Research

- It is a relatively new science
- Due to the change in organizations size and complexity, it becomes more crucial to utilize resources efficiently
- Most developments were during the II world war as there were needs to utilize the scarce resources for the military operations
- From its name, it is the way how to conduct and coordinate operations within a system or organization

About Operations Research

- On successful completion of this course the student should be able to:
  - Formulate the mathematical models for a given problem
  - Solve linear programming models graphically
  - Solve linear programming models using the simplex method
  - Formulate and solve the transportation and assignment problems
  - Decision making
  - Solve the resource allocation problem
### About Operations Research

**Syllabus:**

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What Does Make it Important?

- Modeling is a daily life job
- It can be applied to many fields, construction, health care, military, etc.
- Modeling enables us transforming verbal descriptions into mathematical format
- It is really essential to look for optimal (best) solutions to problems

Examples of Models in Life

Concrete buildings
Examples of Models in Life

Fluid Dynamics

Examples of Models in Life

Groundwater Hydrology
Software Packages

- Solver of Excel
- Lindo
- Lingo and many others