

ICM6761 - Interna Const Plan/Sc(ICM)

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START HERE:

Read and familiarize yourself with all the information in the syllabus below, then work through the modules in order.

INSTRUCTOR:

[Dr. Ian Flood](#), room RNK 316, Rinker School, College of Design, Construction and Planning, University of Florida, Gainesville, FL 32601, USA. Email: flood@ufl.edu

CONTACT AND OFFICE HOURS:

There are no formal office hours for this online course. If you have a question you may: (1) contact me with your question by email, (2) request/schedule a Zoom appointment via email (flood@ufl.edu), or (3) request/schedule an office visit via email (office is RNK 315).

PREREQUISITES:

None.

SUBJECT:

The understanding and solution of complex planning, monitoring, and control problems arising in construction, using basic and advanced planning tools.

OBJECTIVES:

To learn the use and application of basic and advanced tools to the planning, monitoring, and control of residential, commercial, industrial, and heavy construction projects.

Students taking this course will first develop a comprehensive understanding of the fundamentals of planning, monitoring and controlling a construction project using CPM (Critical Path Method) and its related techniques. The course then builds upon this basic knowledge, developing expertise in dealing with problems such as uncertainty in the performance of resources, modeling repetitive construction work, simulating construction processes, and optimizing project plans. The course concludes with an introduction to emerging and possible future approaches to project planning.

The course will provide students with a comprehensive understanding of the issues, tools and methods necessary to be able to act at the forefront of project planning well into the 21st century.

COURSE CONTENT:

The course material (including lecture notes, presentations, interactive media and assignments) should be followed in the order presented.

[Module 1:](#) Introduction to Project Planning

[Module 2:](#) The Critical Path Method

[Module 3:](#) Uncertainty and the PERT Method

[Module 4:](#) Uncertainty and the Monte Carlo Method

[Exam 1:](#) Sample exam questions and model answers for 1st exam, and actual 1st exam.

[Module 5:](#) Repetitive Construction and Linear Scheduling

[Module 6:](#) Construction Simulation

[Module 7:](#) Advanced Resource Management and Plan Optimization

[Module 8:](#) Emerging and Future Planning Techniques

[Exam 2:](#) Sample exam questions and model answers for 2nd exam, and actual 2nd exam.

REFERENCES:

There is no single text that covers all aspects of this course. Therefore there is no specific text recommended for purchase. Instead, this website provides a comprehensive set of notes, presentations, tutorials, interactive media and assigned readings. The following books are suggested for general reference:

- Construction Planning, Programming and Control, *by Cooke and Williams*, published by Wiley Blackwell, 3rd edition, 2009.
- Construction Project Management, *by Sears, Sears, Clough, Rounds & Segner*, published by John Wiley and Sons Inc., 6th edition, 2015.
- Design of Construction and Process Operations, *by Halpin and Woodhead*, published by John Wiley and Sons Inc., 1976.
- Project Planning and Control Using Primavera P6 Versions 8.1, 8.2 & 8., *by Harris*, 2013.
- RSMMeans Building Construction Cost Data, *by Plotner*, published by R S Means and Co Inc., 2014.

INSTRUCTIONS ON SUBMITTING ASSIGNMENTS:

Online submission of assignments requires files to be in either MS Word, Excel or PDF format - each assignment identifies the file type(s) that it permits. All answers to an assignment must be put in the correct order with the question clearly identified, and submitted within just **one** file. Placing all parts of a question in one file can be achieved by several means, for example: (a) in MS Word you can type-in answers, draw pictures, and cut&paste or import images and other objects; (b) Windows provides an easy to use Snipping Tool that allows you to gather images from any part of the screen and then paste them into the file to be submitted; and (c) you can use a scanner to create a single pdf file for submission.

There are no specific due dates for assignments during the semester - this is to allow you to work through the material at a time and pace that suits your schedule. However, this does mean that you need to be self-disciplined

in completing the work, and so it is recommended that you evenly space the completion and submission of assignments across the semester.

GRADING:

| Item | Grade |
|--|-------|
| Exams | |
| • Exam 1 Mid Course | 10 |
| • Exam 2 End of Course | 10 |
| Module 1 Introduction to Project Planning | |
| • Making your Favorite Dish | 2 |
| Module 2 The Critical Path Method | |
| • Activity-on-the-Arrow Networks | 3 |
| • Critical Path Based Time Analysis | 3 |
| • Precedence Networks | 3 |
| • Cost Analysis | 3 |
| • Satisfying Resource Constraints | 3 |
| • Monitoring Progress | 3 |
| • CPM Review: Case Study Construction | 10 |
| Module 3 Uncertainty and the PERT Method | |
| • Cost Risk Analysis using PERT | 10 |
| Module 4 Uncertainty and the Monte Carlo Method | |
| • Monte Carlo | 10 |

Module 5 Repetitive Construction and Linear Scheduling

- Linear Scheduling 10

Module 6 Construction Simulation

- Construction Simulation 10

Module 7 Plan Optimization and Advanced Resource Management

- Space Management 4
- Sequencing Jobs and Processes 6

Module 8 Emerging and Future Planning Techniques

- (no assignments) -

TOTAL 100 %

Letter Grade % Grade

| | |
|----|-------------|
| A | ≥ 93.3 |
| A- | ≥ 90 |
| B+ | ≥ 86.7 |
| B | ≥ 83.3 |
| B- | ≥ 80 |
| C+ | ≥ 76.7 |
| C | ≥ 73.3 |
| C- | ≥ 70 |
| D+ | ≥ 66.7 |
| D | ≥ 63.3 |
| D- | ≥ 60 |
| E | < 60 |

HARDWARE AND SOFTWARE REQUIREMENTS:

To follow this course you will need:

- Internet access (required throughout the course).
- Microsoft Office including, Word, Excel and PowerPoint (required throughout the course).
- Adobe Acrobat Reader (required throughout the course - [click here to download a copy \(Links to an external site.\)](#)).
- Oracle Primavera P6 (student version, required throughout the course - downloading and installation instructions are provided in Module 2).
- DOS Box for Windows (required in Module 6 - downloading and installation instructions are provided in Module 6).
- CYCLONE Simulation Software (required in Module 6 - downloading and installation instructions are provided in Module 6).

GENERAL:

- Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.
- Students must respect all copyright laws.
- The university honor code will be enforced.
- It is recommended that you KEEP REGULAR BACKUPS OF ALL YOUR FILES IN CASE OF A SYSTEM FAILURE!