ISMT610t Business Analysis Tools and Applications

Covers advanced Excel business analysis tools such as financial and date/time functions, lookup, data tables and scenarios, goal seek and the IF function, as well as advanced tools such as probabilistic simulation and decision trees. It also introduces Excel application development using VBA and covering macros, functions, the Excel object model, control and data structures, graphical interfaces and debugging. Emphasis is on extensive, hands-on problem solving, with lectures demonstrating the techniques. Some prior experience with Excel basics is recommended but not mandatory. Prerequisite: ISMT502.

Textbooks

1. *VBA for Modelers (with CD)*
by S. Christian Albright (Duxbury-Course Technology, 2000) ISBN 0534380123

2. *Practical Management Science (with CD) Second Edition*
by Winston and Albright (Duxbury-Course Technology, 2001) ISBN 053442435X

Assessment

Instruction will include hands-on in-class lectures utilizing Excel and VBA, readings in which the students will create tools and applications as they follow along in the reading, homework assignments from the textbooks and a hands-on final exam conducted in a computer laboratory.

Lecture Topics

Helpful Excel Features
Excel Charts
Date & Time Functions
Financial Functions
Financial Modeling (Profit Computations, Breakeven Analysis, Sensitivity Analysis)
Lookup Functions
Formula Auditing
Lists, PivotTables & Filters
Data Tables, Scenario Management & Goal Seek
Introduction to Application Development
Range Names
The IF Logical Function
Data Validation Rules
Cell Locking and Worksheet Protection
The Excel Object Model (A2)
The VBA Editor; Subs & Functions (A3)
User Interface, Strings, the With Construct (A4)
Macros (A5)
Working with Ranges (A6)
Structured Programming in VBA
Control Logic and Loops (A7)
Workbooks, Worksheets & Charts (A8)
Arrays (A9)
Advanced Subroutine Features (A10)
User Forms (A12)
Advanced Application Development
Debugging and Error Handling (A13)
Application Development (A14)
VBA Applications: Estimating the Relationship between Two Variables (A22)
Introduction to Simulation Modeling in Excel
Advanced Simulation Modeling
Decision Analysis under Uncertainty