CES8AC TOOLS METHODS DESIGN DECISION SUPPORT SYSTEMS

CES8AC Tools and methods to design Decision Support Systems	ECTS Credits : 4 Duration : 36 hours	Semester : S8

Person in charge:

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Keywords:

Simulating, decision taking, computerised systems, VBA

Prerequisites: Programming, operational research

Goal: Choose the best tool to solve decision taking problems

Program and contents :

The engineer must have at his disposal a wide array of tools and methods to tackle decision taking issues that are frequent in the industry and services. Gaining command over specialised tools, like discrete events simulation, systems dynamics, linear programming solvers both quadratic and stochastic and many more completes the theoretical background previously acquired (mathematics, operational research). These tools are most times deployed within the framework of a programming language or spreadsheets. VBA Excel, widely used in enterprises, will serve as a programming environment for implementing the numerical simulation methods (Surbooking optimization for an airline or study of the distribution of a profit function for example). There are many types of applications : production, ecology, finance and more. The ultimate goal is to enlarge the scope of methods available without focalising on any one approach. Mathematica will be used regularly for its quality of representation and its effectiveness.

the program carries on the following points:

- Discrete events simulation. Use of Extend software
- System dynamics. Use of Stella software
- VBA Language. communicating between sheets and files. Key commands
- Application development under VBA/Excel. Sectors : Resource management, production, finance. Application to decision taking in a fundamentally uncertain world.

Abilities :

Level	Description and operational vocabulary
Know	Know the best tools and methods to resolve decision taking problems
Understand	Know the pros and cons of the different approaches
Apply	Know to implement the methods in given computer environments
Analyse	Identify data, results. Know how to breakdown a model in logical units
Summarise	
Assess	

Evaluation :

☐ Written test	☑ Continuous assessment	☐ Oral presentation	☑ Project	☑ Written report