

AGIR : methodology to solve energy system design problems

Prof François Marechal

Analyse

Generate

Interpret

Report

- **A : Analyse** : State the problem and Activate your knowledge
 - Read the question
 - => we show you the way similar problems have been solved
 - Activate the computational tools needed
 - => be inspired by the examples
 - Describe what you are looking for
 - => e.g. define the physical units of what is expected

- **G :Generate** : Generate numbers by computer tools
 - Program the generation of numbers with comments and reporting
 - => duplicate and adapt the codes
 - => document and report your assumptions
 - => reference the data sources
 - Develop process models
 - Structure => define flowsheets and specifications
 - Solve => converge
 - Extract numbers
 - Programming language are needed
 - => Aspen plus (flowsheeting tool)
 - => Python or R : elementary levels is required for manipulating data/
presenting data

- **I : Interpret** the generated results : from numbers to chemical engineering meaning
 - Program the interpretation of the generated numbers
 - Graphs
 - Tables
 - Numbers

=> we use rmarkdown from r-studio : reproducible science & open source

- Do not forget
 - Physical units
 - Axis titles
 - Captions
 - References

- **R : Report** : convey the message to people outside your group
 - Make a summary of your main results
 - Make a documentation to the others
 - Add references