Practical exercises:

Exercise
Install the newest stable release of Grass GIS: https://grass.osgeo.org/ (currently 7.8.5).

Exercise
Make yourself familiar with Grass GIS by watching the introductory video by Markus Netteler: https://www.youtube.com/watch?v=eL4M6OCvAys

Exercise
Refresh your knowledge regarding GIS. You should be familiar especially with raster maps and the import, generation and modification of those.

Exercise
a) setup a new GRASS Location with the EPSG code 25832.

b) See the current set computational region (g.region -p)

c) set the region to a spread of 1000 m from north to south and from west to east with a resolution of 25 cells in each dimension. (g.region)

d) Generate a raster map with 99 as entry of each cell. (r.mapcalc)

e) Copy this raster map and modify it to have a vertical and horizontal line going through the midpoint with values of 1. (r.mapcalc)

Theoretical exercises:

Exercise
Describe the relationship between a conceptual, a mathematical and a numerical model.

Exercise
In your own words: Describe the difference between a stochastic and a deterministic model.

Exercise
In your own words: Describe the difference between a transient and a steady state model.

Exercise
Name benefits and drawbacks of an empirical model.

Exercise

In your own words: Describe the difference in aim and working procedure between verification and validation.

Exercise

In your own words: Describe the difference in aim and working procedure between the prognostic and the inverse modeling approach.