

Course on basic features of HEC-RAS software

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Requirements:

1. laptop
2. HEC-RAS 5.x.x,
3. Internet connection,
4. any PDF reader, e.g. Acrobat Reader, Sumatra PDF
5. any GIS reader, e.g. ArcReader, Cadcorp SIS Desktop Express or open source GIS software, e.g. QGIS, MapWindow

How to apply?

To express your willingness to take part in this course, simply write to contact@iahr2020.pl. Please note that the number of participants is limited. Confirmation are served on the first come first confirmed basis.

| Time* | content |
|----------------------------------|--|
| 1 st block 1h30min | <ol style="list-style-type: none">1. Introduction to HEC-RAS2. Manual preparation of the channel geometry3. Setting and running of steady flow calculations4. (optional) Multiple profiles in steady flow computations |
| 2 nd block 1h30min | <ol style="list-style-type: none">1. Import of data from other projects, e.g. geometry2. Basic unsteady flow simulation3. Steady flow computations in a channel with inline structure4. Import of separated geometry elements5. Unsteady flow computations with inline structure |
| 3 rd block 1h30min | <ol style="list-style-type: none">1. Introduction to the use of geographic data in HEC-RAS2. Import of SDF data to HEC-RAS3. Basic features of RAS Mapper4. Visualization of results |

* Detailed schedule will be announce after the Congress itinerary is finalized

Detailed description

| First block | | |
|--------------|---|---|
| No. | Content | Description |
| 1 | Introduction to HEC-RAS | - basic information: developer, main ideas, composition of the GUI |
| 2 | Manual preparation of the channel geometry | - basic elements: river, reach, river station, extent, - creating and coping cross-sections, - specific length, roughness coefficients, bank identification, - interpolation of cross-sections. |
| 3 | Setting and running of steady flow calculations | - setting main parameters: discharge, boundary condition, - computational plans and running computations, - typical errors, - review of results |
| 4 | Multiple profiles and boundary conditions in steady flow computations | - setting data for multiple profile calculation: discharges, boundary conditions, - running computational plan and comparison of results |
| Second block | | |
| No. | Content | Description |
| 1 | Import of data from other projects, e.g. geometry | - searching for data from another HEC-RAS project - review and necessary correction of imported data |
| 2 | Basic unsteady flow simulation | - setting main data: initial condition, boundary conditions - setting computational plan - running computations and viewing results - additional options: initial condition from results - additional options: stability setting, warm-up |
| 3 | Steady flow computations in a channel with inline structure | - setting basic inline structure: location, weir/embankment data, - setting gates: gate groups, location and dimensions, opening gates - setting ineffective flow areas - optimization of gate openings |
| 4 | Import of separated geometry elements, e.g. inline structure | - selection of proper data - selection of elements in the imported data - review and necessary correction of imported element |

| 5 | Unsteady flow computations in a channel with inline structure | <ul style="list-style-type: none"> - simulation without gates - configuration of time series for gate openings - elevation controlled gates - other options: navigation dams, rules |
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| Third block | | |
| No. | Content | Description |
| 1 | Introduction to the use of geographic data in modeling with HEC-RAS | <ul style="list-style-type: none"> - general ideas: river centerline, banks, cross-sections, flowpaths, digital terrain models - short review of available software: HEC-GeoRAS (ArcGIS), RiverGIS (QGIS), GeoHECRAS - import / export of data: geometry files, SDF format, XML format |
| 2 | Import of SDF data to HEC-RAS | <ul style="list-style-type: none"> - import wizard: units, river centerline, nodes (cross-sections, bridges, structures, etc..) - necessary correction, e.g. bank points, - graphical edition of geometry data. |
| 3 | Basic features of RAS Mapper | <ul style="list-style-type: none"> - visualization of geometry in RAS Mapper, - import of terrain data, - assignment of terrain to geometry. |
| 4 | Visualization of results | <ul style="list-style-type: none"> - basic unsteady flow simulation on the basis of imported data, - review of results and animation in RAS Mapper, - export of results to GIS layers. |