Agenda and Schedule of Fortran Course December 2022

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schedule 1st day

- 9:00 Fortran basics part 1
- 12:30 Lunch break
- 13:30 Fortran basics part 2
- 17:00+ End

  – content, terms and concepts:
    - history, links, character set, declarations and attributes, intrinsic types, derived types (parameters), floating point accuracy, kind, operators, control constructs:
      do, do concurrent, if-then, select-case, where, forall, associate, block, goto, stop

- we will make breaks at about all 30 minutes for recreation and doing the excercises

- please give me a sign if you need a break

schedule 2nd day

- 9:00   program units, modules, procedures part 1
- 12:30   Lunch break
- 13:30   program units, modules, procedures part 2
- 17:00+   End

  - content, terms and concepts:
    - programs, subroutines, functions, (pure, simple, elemental, module, external, internal, intrinsic, type bound, generic) procedures, (sub) modules, selfdefined and overloaded operators, keywords and optional arguments, information hiding (public, private, protected), type bound procedures, (implicit, explicit) interfaces, interface blocks, iso_fortran_env module

- we will make breaks at about all 30 minutes for recreation and doing the excercises
- please give me a sign if you need a break

schedule 3rd day

- 9:00   Dynamic data 1
- 12:30   Lunch break
- 13:30   Dynamic data 2
- 17:00+   End

  – content, terms and concepts:
    - pointer, target, allocatable arrays, automatic arrays, arrays in interfaces, contiguous attribute, allocatable strings, array syntax, influence of constructs on performance

- we will make breaks at about all 30 minutes for recreation and doing the excercises
- please give me a sign if you need a break

schedule 4th day

- 9:00 Input and Output
  - content, terms and concepts:
    - read, write, print, keywords, format, edit descriptors,open, close, flush, namelist, formatted IO, unformatted IO, direct access IO, asynchronous IO, international character sets, stream IO, inquire, IO performance
- 12:30 Lunch break
- 13:30 Intrinsic procedures
  - overview about all Fortran standard procedures; no exercises
- 14:00 Obsolete features
  - understand old and obsolete Fortran features to be avoided
- 15:00 multiple source files
  - how to handle larger programs
- 16:00 compiler usage
- 17:00+ End

schedule 5th day

- 9:00 Object orientation in Fortran
  - content, terms and concepts:
    - procedure statement, procedure pointers, abstract interfaces, import, type bound procedures, type extension and inheritance, abstract types, polymorphic entities, select type construct, structure constructor, finalizer
- 12:30 Lunch break
- 13:30 Rules for serial code performance optimization
  - content, terms and concepts
    - how hardware looks, principles of code performance, memory access, how to get better loop performance
- 15:00+ End

end of agenda and schedule Fortran course