

# Agenda and Schedule of Fortran Course April 2021

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## schedule 1<sup>st</sup> day

- 9:00 Fortran basics part 1
  - 12:00 Lunch break
  - 13:00 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



## schedule 2<sup>nd</sup> day

- 9:00 modules, procedures part 1
  - 12:00 Lunch break
  - 13:00 modules, procedures part 2
  - 17:00+ End
- content, terms and concepts:
- programs, subroutines, functions, (pure, 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



## schedule 3<sup>rd</sup> day

- 9:00            Dynamic data 1
  - 12:00           Lunch break
  - 13:00           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



## schedule 4<sup>th</sup> 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
- 12:00            Lunch break
- 13:00            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 5<sup>th</sup> 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
- 12:00            Lunch break
- 13:00            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

