```
module constants_and_parameters

  use kind_types
  implicit NONE

  ! dimensional parameters
  integer ( lint ), parameter :: num_mesh =     4         !  number of
  integer ( lint ), parameter :: dof      =    10         !  order of
  integer ( lint ), parameter :: seed_dim =    14         !  architect

  ! io_units
  integer ( lint ), parameter :: io_unit_nml     = 1
  integer ( lint ), parameter :: io_unit_system  = 2
  integer ( lint ), parameter :: io_unit_arrays  = 3
  integer ( lint ), parameter :: io_unit_stats   = 4
  integer ( lint ), parameter :: io_unit_error   = 6
  integer ( lint ), parameter :: io_unit_default = 6
  integer ( lint ), parameter :: io_unit_goodbye = 6

  integer ( lint ), parameter :: io_unit_trace   = 11
  integer ( lint ), parameter :: io_unit_measure = 12

  ! constants
  real ( wp ), parameter      :: pi = 3.14159265358979323846264338327
  real ( wp ), parameter      :: machine_eps = 2.221D-16    ! 1 + eps

  real ( wp ), parameter      :: zero = 0.0_wp
  real ( wp ), parameter      :: half = 0.5_wp
  real ( wp ), parameter      :: one  = 1.0_wp

  ! kth term is the number of monomials in Taylor polynomial of order
  integer ( lint )            :: num_terms ( 1 : 20 ) = [ 3, 6, 10, 15
                                                          105, 120, 136,
  integer ( lint ), parameter :: t = 66 ! num_terms ( dof )
!  integer ( lint ), parameter :: num_intervals = 5 ! num_terms ( dof
```

```
38   character ( 11 )            :: whoami ( 1 : 2 ) = [ 'emmissivity', '
39
40   ! based on data files
41   integer ( lint ), parameter :: num_pts_temp    = 81
42   integer ( lint ), parameter :: num_pts_density = 51
43
44 end module constants_and_parameters
```