3-Day-Course — 1st day

Message Passing Interface (MPI-1, part 1)

9:00 **Introduction** [1] (talk)
9:10 **Parallel Architectures and Programming Models** [2] (talk)
10:10 Coffee
10:25 **MPI-1 – Introduction to the Message Passing Interface** [3+3a] (talk)
10:25 **Chap. 1 MPI Overview** (talk)
10:45 **Chap. 2 MPI Process model** (talk+practical)
12:00 Lunch
13:00 **Chap. 3 Messages and Point-to-Point Communication** (talk+practical)
14:15 Coffee
14:30 **Chap. 4 Non-Blocking Communication** (talk+practical)
15:45 Coffee
16:00 **Chap. 5 Derived Datatypes** (talk+practical)
Writing Message-Passing Parallel Programs with MPI [4] (only in the handouts)
17:00 **Parallel debugging** [5] (talk)
17:30 End

3-Day-Course — 2nd day

Message Passing Interface (MPI-1, part 2) and OpenMP

9:00 **Chap. 6 Virtual Topologies** [3, continued] (talk+practical)
10:10 Coffee
10:25 **Chap. 7 Collective Communication** (talk+practical)
11:00 Coffee
11:15 **Chap. 8 Other MPI-1 features** (talk)
11:40 **Heat conduction program, a parallelization example with MPI** [6] (talk)
12:00 Lunch
13:00 **OpenMP – Overview and execution model** [7+7a] (talk+practical)
14:00 Coffee
14:15 **OpenMP – Work sharing directives** (talk+practical)
15:15 **OpenMP – Data environment** (talk+practical)
16:00 Coffee
16:15 **OpenMP – Summary and Pitfalls** (talk)
16:45 **Assure – detection of OpenMP race conditions** [8] (talk)
17:15 **Access to the federal high-performance computing-centers** [9] (talk)
17:30 End

3-Day-Course — 3rd day

MPI-2, PETSc and VAMPIR

9:00 **MPI-2 overview** [10] (talk)
9:15 **Parallel file I/O (basics)** [11] (talk+pr.)
10:15 Coffee
10:30 **Parallel file I/O (fileviews)** (talk+prac.)
11:30 **Parallel file I/O (access methods)** (talk)
12:00 Lunch

alternatively:
9:15 **MPI-2 one–sided comm.** [12] (talk+practical)
10:00 Coffee
10:15 **Laplace-example with MPI** [42a+b] (talk+practical)

13:00 **Parallel programming models on hybrid systems / MPI+OpenMP** [23] (talk)
14:00 Coffee
14:15 **PETSc Tutorial** [41] (talk)
15:00 **Laplace-Example with PETSc** [42a+c] (talk+practical)
15:45 **VAMPIR and other tools for performance analysis** [16, 17] (talk+practical)
16:30 End