The workshop proceedings provide a balanced coverage of five aspects : current trends in models of parallel computers, principles of algorithms and design, numerical/non-numerical algorithms and scientific and engineering applications.

The workshop proceedings covers concepts of current trends in architectural features and parallel programming of multiprocessors, and network-based cluster platforms. The crossbreeding technologies demands a new a generation of computers that can adapt to scalable, parallel, and distributed computing. This changes in computers and information technologies has promoted computer professionals from various profession to study the material covered in this proceedings. The ultimate goal is to solve large scale scientific and industrial applications and become ready for new challenges in the 21st century.

The class-room lectures in the workshop cover theoretical aspects. The main objective of the class-room lectures is to cover the topics such as models of parallel computers, numerical algorithms (dense and sparse matrix computations, and Fast Fourier transformations) and non-numerical algorithms (graph and sorting algorithms).

Also, participants will be exposed to practical aspects of class-room lectures the hands-on session. The workshop also focus on elaborate hands-on session on each day using portable Parallel Programming with the Message Passing Interface (MPI). The MPI is designed to accelerate the development of parallel programes and libraries by demonstrating how to use the new standard in parallel computing. It fills the gap among introductory topics on parallel computing, advanced topics on parallel algorithms for scientific and engineering computing.

The workshop participants have opportunity to use PARAM 10000, a  C-DAC's 40 node (160 processor) 100 Giga Flop parallel supercomputer installed at National PARAM Supercomputing facility (NPSF). The CDAC HPCC (High Performance Computing Communication) software supports development and execution of both sequential and message passing programs on PARAM 10000. The software effectively addresses the performance and usability challenges with a suite of tools that participants will find useful in measuring, understanding, and improving the performance of their parallel programs during hands-on session.

The workshop proceedings along with hands-on session notes is not only a tutorial on the use of MPI as a language for expressing parallel algorithms but also a handbook for those seeking to understand and improve the performance of large scale applications and libraries.