Curriculum of the Program

PhD Applied Mathematics Program

Admission Requirements

For admission in PhD Applied Mathematics program a minimum of 3.0 CGPA out of 4.0 (Semester System) or first division (Annual System) in 18 year education in M. Phil/M.S/Equivalent in a relevant discipline is required.

Scheme of Studies for PhD Mathematics Program

Course Work/Qualifying Exam

Course work of 18 credit hours preferably in the first year is required to be completed and followed by a qualifying exam for granting candidacy as PhD researcher. All PhD rules of PIEAS will be followed.

List of PhD Courses

An 18 credit hrs course work comprises of 6 elective courses will be opted by a PhD candidate. The courses can be selected from following list:

1. Nonlinear Finite Element Method
2. Boundary Element Method
3. Finite Element Programming
4. Theory of Compressible Flows
5. Advanced Transport Phenomenon
6. Multiphase Flow and Heat Transfer
7. Computational Fluid Dynamics
8. Turbulence Modeling and Grid Generation
9. Computational Gas Dynamics
10. Advanced Solid Mechanics
11. Cryptographic Algorithms
12. Cryptanalysis
13. Advanced Cryptography
14. Grid Computing
15. Parallel Algorithm
16. Parallel Computing
17. Evolutionary Computing
18. Cloud Computing
19. Monte Carlo Simulations

20. Classical and Relativistic Mechanics
21. Statistical Physics
22. Simulations in Statistical Physics
23. Advanced Quantum Mechanics
24. Plasma Physics-II
25. Neutron Transport Theory

Note:

The PhD candidate must have already studied the following courses during 18 year of education. Those candidates who have not covered any of these courses will have to opt them in addition to their PhD course work of 18 credit hrs.

1. Linear Algebra
2. Advanced Optimization Techniques
3. Partial Differential Equations
4. Numerical Solution of Differential Equations