COMPUTATIONAL FLUID DYNAMICS LAB

II Semester

Course Code: 19ME2208	L	P	C
	0	3	1.5

Course Outcomes: At the end of the course the student shall be able to

CO1: Solve steady state and transient heat conduction problems using a software package.

CO2: Solve heat transfer problems in fins and duct low using a CFD software.

CO3: Analyze natural convection problems using a CFD package.

CO4: Solve diffusion problems using FVM.

CO5: Apply central and upwind methods to convection-diffusion problems.

LIST OF EXPERIMENTS:

Cycle I: Problems of Cycle-I have to be solved using a CFD software

1. Steady state one-dimensional heat conduction in a composite wall
2. Transient one dimensional heat conduction in a slab
3. Heat transfer from a circular fin.
4. Parallel flow heat exchanger
5. Counter flow heat exchanger.
6. Natural convection heat transfer

Cycle II: Problems of Cycle-II have to be solved by writing source codes in C

7. Transient 1-D heat conduction in a slab by Crank-Nicolson implicit method by FDM discretization
8. Steady state 1-D heat transfer in an insulated rod with heat generation by FVM discretization
9. Steady state 1-D heat transfer in a cylindrical fin by FVM discretization
10. One-dimensional heat transfer by convection-diffusion by FVM discretization. Use central differencing scheme in discretization.
11. One-dimensional heat transfer by convection-diffusion by FVM discretization. Use upwind differencing scheme in discretisation.
12. Solve three simultaneous algebraic equations by Gaussian elimination method.