Course Type	Course Code	Name of Course	L	T	P	Credit
DP	**NMCC529**	Computational Fluid Dynamics Lab	0	0	3	1.5

Course Objective
● Audience who enrolled would be developing the code either in C/C++ or python 3 for simple governing equations of PDE of Flow problems
Learning Outcomes
● Audience will be able to develop the code for simple form of N-S equations of governing the fluid flow equations using FDM, FVM methods.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Simple Basic 1d equations of PDE.	9	The students shall be able to write the code for simple fluid flows.
2	Solving 2D equations of PDE by FDM.	9	The students shall learn various methods of discretization and so on.
3	Solving 2D equations by Finite Volume discretization.	9	Processing stage of FVM, BVM, QUICK Schemes for solving governing equations for fluid flows.
4	SIMPLE schemes, QUICK schemes implementations.	9	For time dependent NS equations places vital role.
5	Stability Criterion of Schemes using Numerical codes.	6	The student explores the stability criterion of the schemes and analyse for real life systems.
Total		**42**	

Text Books

1. J.H. Ferziger and M. Peric: Computational Methods for Fluid Dynamics, Springer (South Asian 2003 Reprint).
2. H. Versteeg & W. Malalasekera, An Introduction to Computational Fluid Dynamics: The Finite Volume Method, Pearson Education Ltd., 2009.

Reference Books

1. P. Niyogi, S.K. Chakrabarty, M.K. Laha: Introduction to Computational Fluid Dynamics, Pearson Education Asia, 2005.
2. John D. Anderson Jr.: Computational Fluid Dynamics, CRC Press, 2019 (Reprint).James Rambaugh, Objet-Oriented Modeling and Design, Prentice-Hall.