UNIVERSIDADE FEDERAL DE SANTA CATARINA
CENTRO DE CIÊNCIAS FÍSICAS E MATEMÁTICAS
PÓS-GRADUAÇÃO EM MATEMÁTICA PURA E APLICADA

MTM510044 Discontinuous Galerkin Finite Element Methods for Problems of Multiphase Flows in Porous Media

Pre-requisite: x-x

Weekly lesson hours: 06h

Discipline syllabus: Mathematical models for simulation of biphasic flows in porous media. Initial conditions and boundary conditions. Galerkin finite element methods discontinuous for degenerate parabolic and elliptical problems. Sequential discontinuous Galerkin method for two-phase flow equation systems.

BIBLIOGRAPHIC REFERENCES

1. Di Pietro, Daniele A. and Ern, Alexandre. Mathematical Aspects of Discontinuous Galerkin Methods. Math_ematiques & Applications, Springer, 2011.
2. Chen, Z. Huan, G. and Ma, Y. Computational methods for multiphase flows in porous media. SIAM, 2006.
3. Rivière, B. Discontinuous Galerkin methods for solving elliptic and parabolic equations: Theory and implementation. SIAM, 2008.

COMPLEMENTARY BIBLIOGRAPHY

1. Chavent, G. and Jaffrè, J. Mathematical Models and Finite Elements for Reservoir Simulation, Elsevier, 1978.
2. Helmig, R. Multiphase ow and transport processes in the subsurface. Springer, 1997.