# NOC:Basic Concepts of Modal Logic - Video course

## COURSE OUTLINE

Modal logic extends classical logic with the ability to express not only ‘P is true’, but also statements like ‘P is known’ or ‘P is necessarily true’. We will define several varieties of normal modal logic systems (K, T, D,S4, S5), providing both their semantics and their axiomatic proof systems, and prove their standard soundness and completeness theorems. On completion of the course, students are expected to have a good understanding of the technical details of the logic covered, and use it under various contexts including some of philosophical debates surrounding these logics.

## COURSE DETAIL

| Week | Topics |
|---|---|
| 1. | What is Logic? |
| 2. | Origin of Modal Logic:Syntactical tradition of Modal Logic |
| 3. | Basic notions of Proof Theory, properties of Proof theoretic notions |
| 4. | Semantics of Normal Modal Logic(3 hrs): Modal Realism, Possible Worlds Semantics, Semantic Tableaux Method for Normal Modal Logic, Completeness, Logic of Conditionals |

**References:**


- B.F. Chellas. Modal Logic: An Introduction. Cambridge University Press, 1980.
- G. Hughes and M.J. Cresswell. A Companion to Modal


NP-TEL

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**http://nptel.ac.in**

Humanities and Social Sciences

**Pre-requisites:**

Introduction to Logic, basic set theory

**Coordinators:**


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Logic. Methuen, 1984.
- G. Hughes and M.J. Cresswell. A New Introduction to Modal Logic. Routledge, 1996.
- A. Chagrov and M. Zakharyaschev. Modal logic. Oxford University Press, 1997.
- P. Blackburn, M. De Rijke, and Y. Venema. Modal Logic. Cambridge University P. Blackburn, J. van Benthem, and F. Wolter. Handbook of Modal Logic. Elsevier, 2007.
- Press, 2001.Fitting, M. and Mendelsohn, R.L. 1998: First-Order Modal Logic. Dordrecht, The