

SNS COLLEGE OF ENGINEERING Coimbatore – 641 107



TUTORIAL 3

- 1. Prove that $(\forall x)$ $(P(x) \rightarrow Q(x))$, $(\forall x)$ $(R(x) \rightarrow \neg Q(x)) \Rightarrow (\forall x)$ $(R(x) \rightarrow \neg P(x))$.
- 2. Show that the conclusion $(\forall x)$ $(F(x) \rightarrow \exists S(x))$ follows from the premises $(\exists x)(F(x) \land S(x)) \rightarrow (y)$ $(M(y) \rightarrow W(y))$ and $(\exists y)$ $(M(y) \land \exists W(y))$.
- 3. Show that $(\forall x) (P(x) \lor Q(x)) \Rightarrow (\forall x) (P(x) \lor (\exists x) Q(x))$ by indirect method of proof.
- 4. Show that (x) $(P(x) \rightarrow Q(x) \land (x) (Q(x) \rightarrow R(x)) \Rightarrow (x) (P(x) \rightarrow R(x))$