Speed Control of Induction Motor

VEDIC SKILL.

Agenda

- Getting Started with MATLAB/SIMULINK
    - Power Electronics Devices
- Design of Single-Phase Inverter
- Design of Three-Phase Inverter
- Proportional + Integral (PI) Control
- Closed Loop Speed Control Squirrel-Cage Induction Motor
    - Stator Voltage (V) Control
    - Frequency (F) Control
    - V/F Control

Introduction to Power Electronics Device

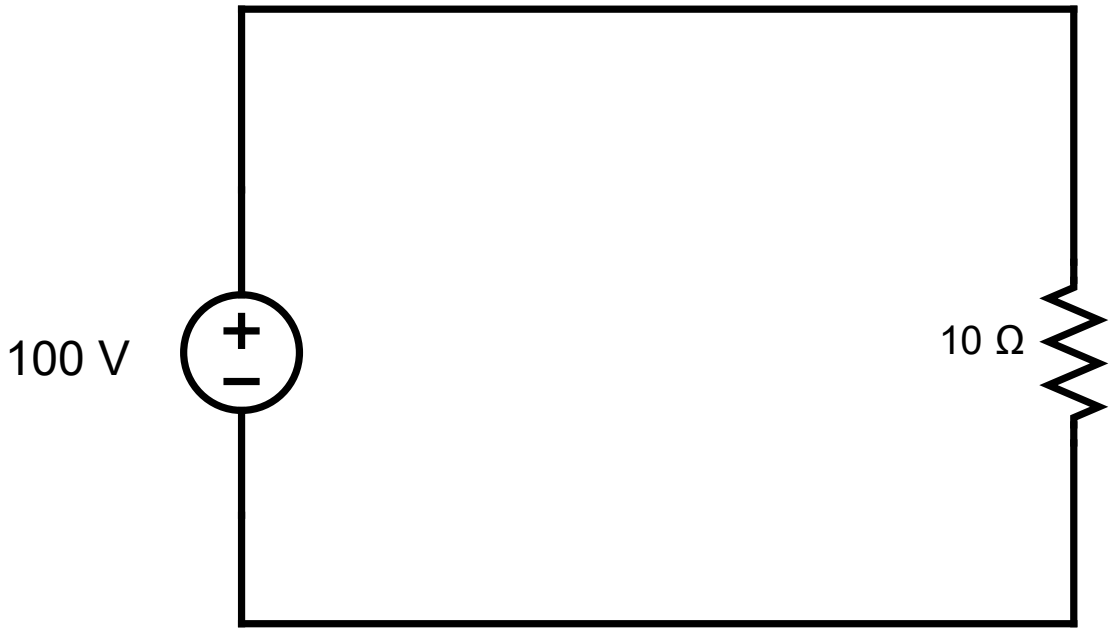
MATLAB/SIMULINK

- Design of Electric Circuit.
- Uncontrolled Device
  - Diodes
- Controlled Device
  - Thyristor
  - Mosfet
  - IGBT

Generate Pulses for AC/DC voltage

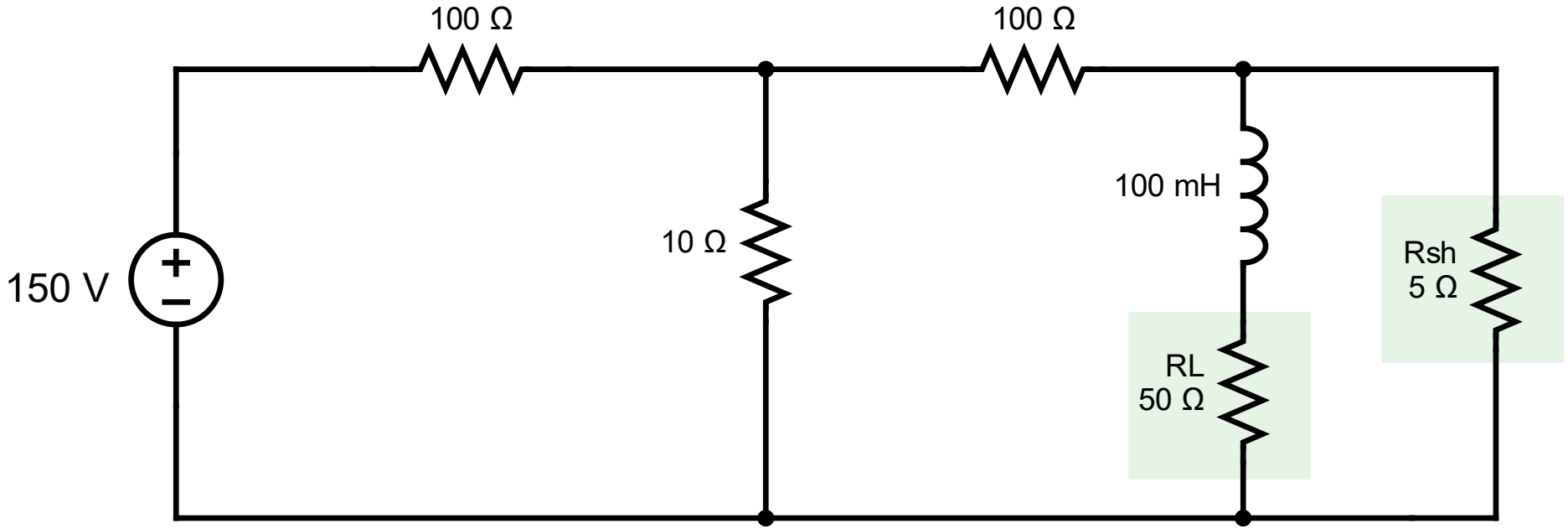
Circuit - 1

Measure Voltage and Current across R_L



Circuit - 2

Measure Voltage across R_L and current through R_{sh} in SIMULINK



Uncontrolled Devices

Diode Rectifier

Rectifier

A rectifier is a circuit that converts an AC signal into unidirectional signal.

- AC to DC converter

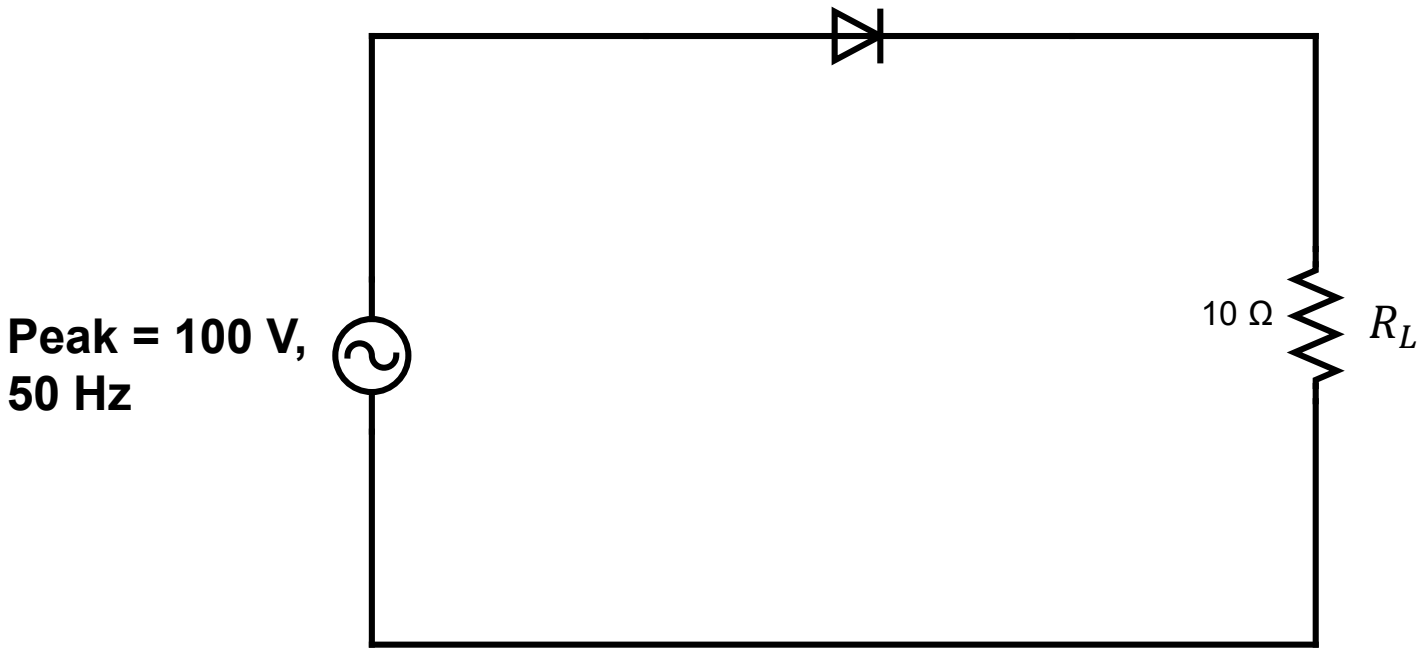
Types of Uncontrolled Rectifier:

- Half Wave Rectifier
- Full Wave Rectifier
- Full Wave Bridge Rectifier

Half Wave Rectifier

CIRCUIT – 1

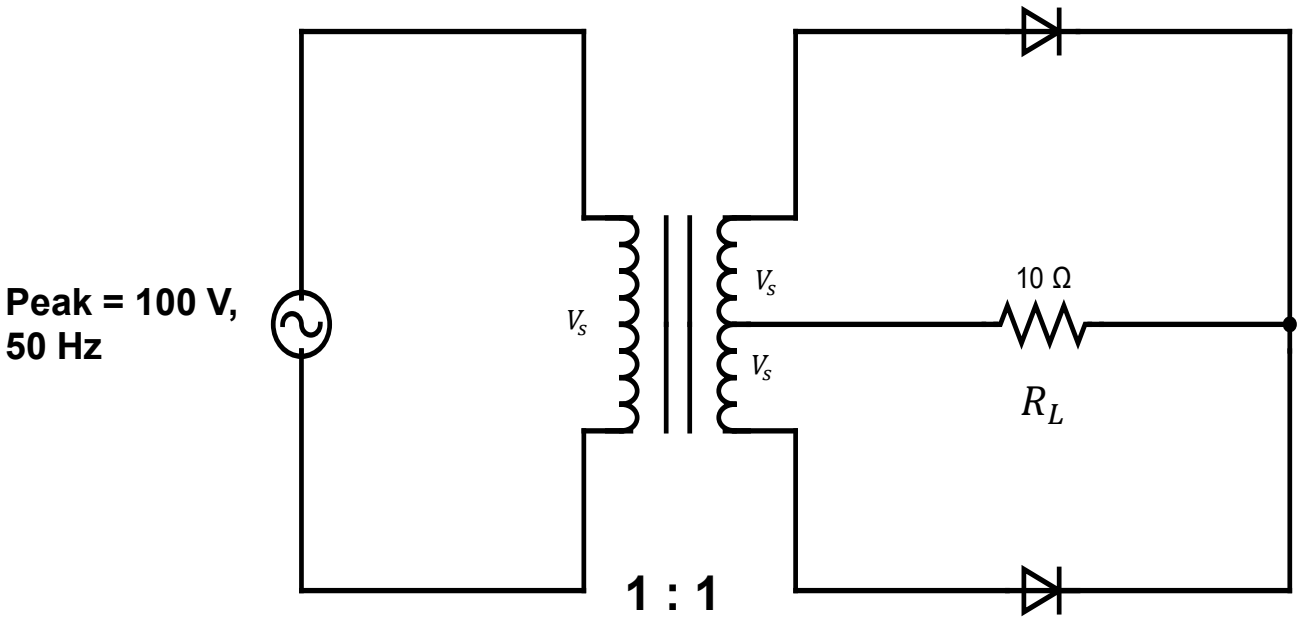
- Visualize voltage and current across R_L

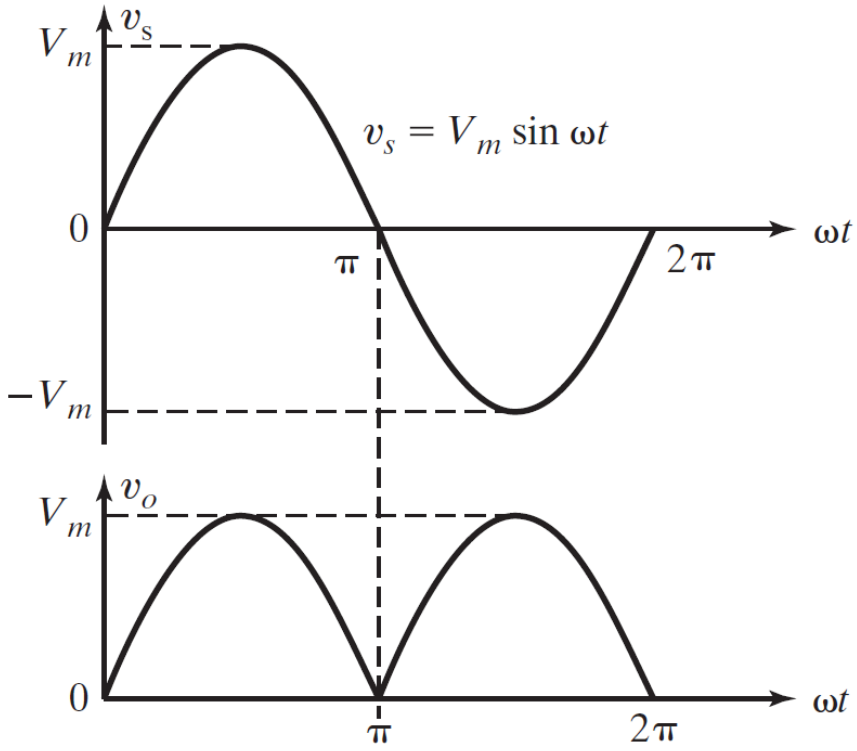


Full Wave Rectifier

CIRCUIT – 2

- Visualize voltage and current across R_L

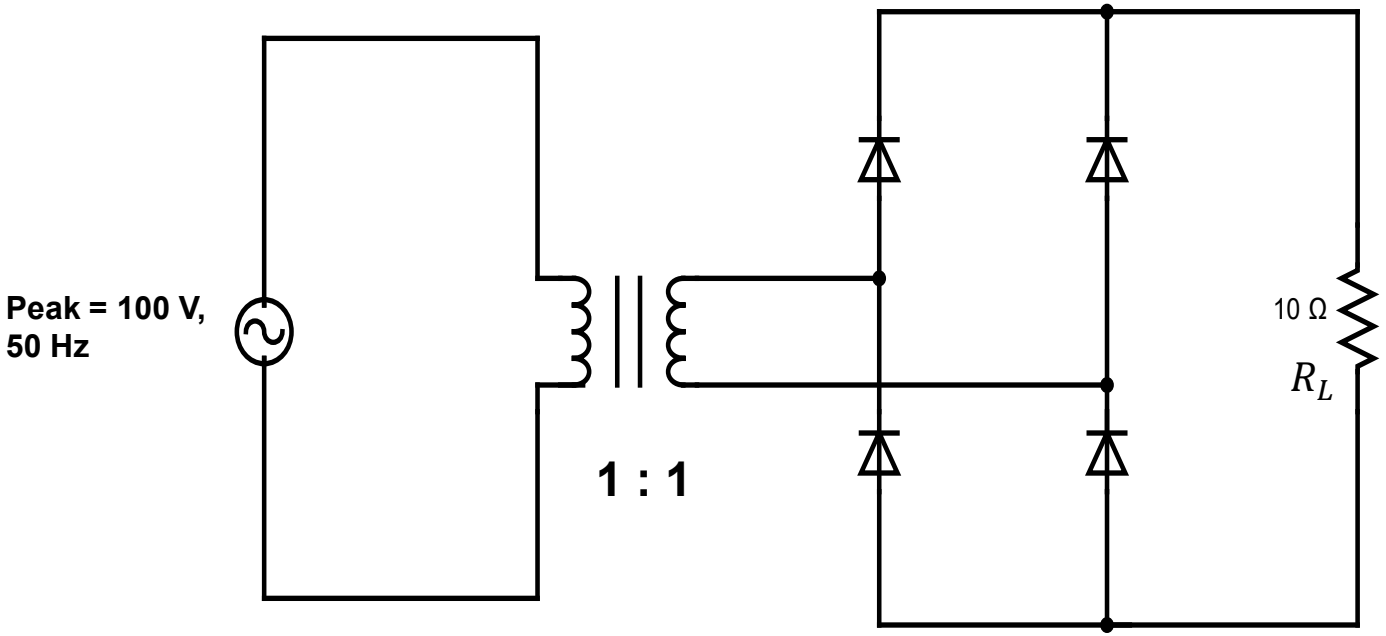


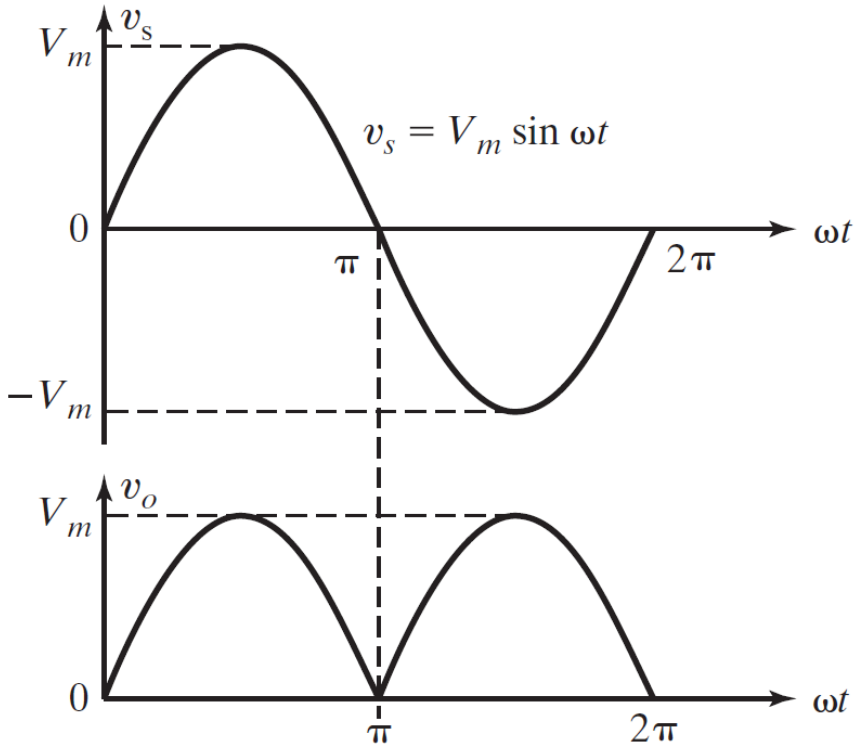


Full Wave Bridge Rectifier

CIRCUIT – 3

- Visualize voltage and current across R_L

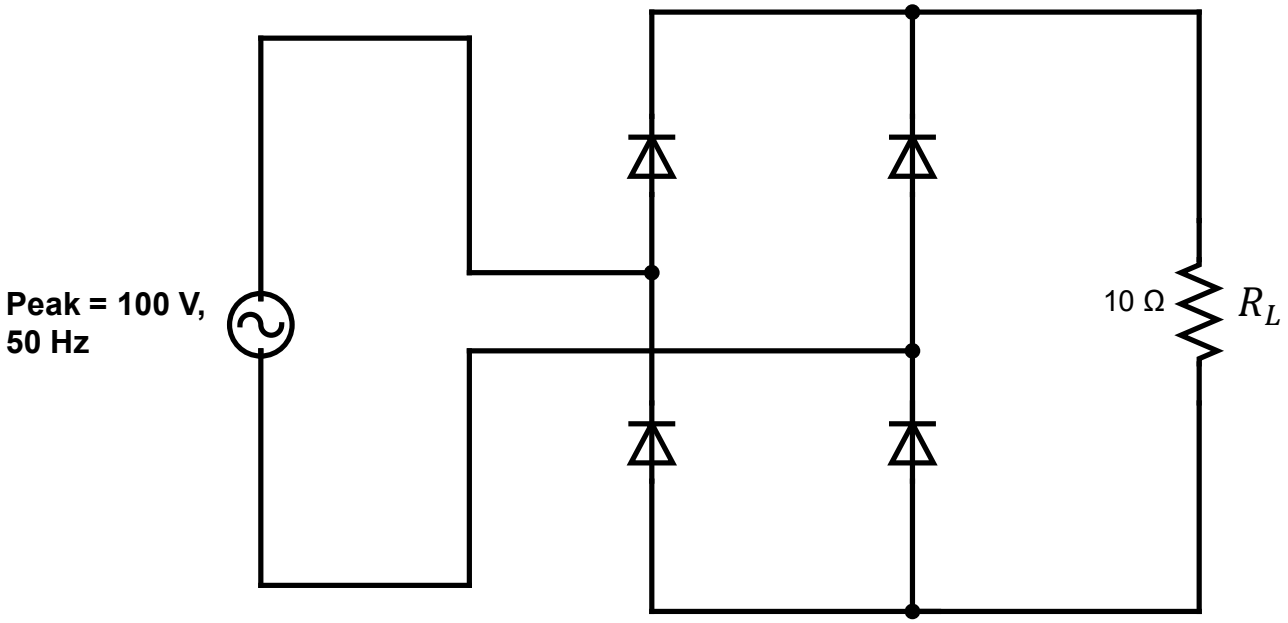


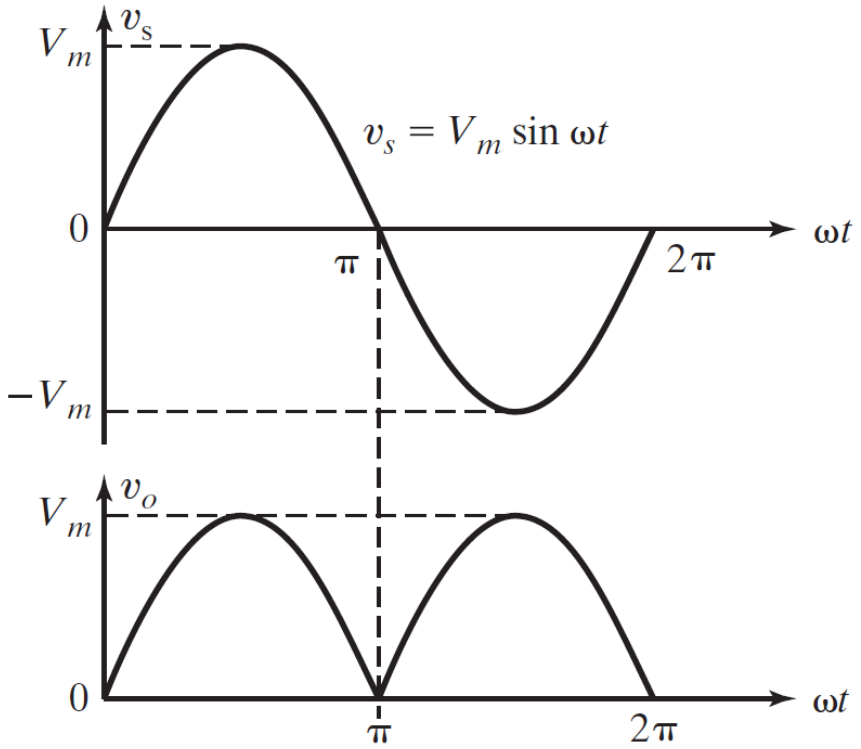


Full Wave Bridge Rectifier

CIRCUIT – 4

- Visualize voltage and current across R_L





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