Module 8: Design of combinational logic circuits

Learning objectives:

Study of the following topics -

Structure of combinational logic
Operators in VHDL
Different ways of describing combinational circuits

This module introduces the design of combinational logic circuits i.e. circuits made using simple combinations of basic logic gates, without any feedback and having no latches, flip-flops and clock signals. The structural requirements for a circuit to be a combinational logic circuit is first described. Several types of operators available in VHDL such as relational, logical and arithmetic operators are described next, followed by a description of different ways in which combinational logic circuits can be described in VHDL.

First go through the Powerpoint slides and the videos and then complete the associated reading assignments for this module.

Reading assignments

The required reading for understanding module 8 topics is listed below. Use the book: VHDL for Programmable Logic by Kevin Skahill for this purpose.

Start reading from section 4.3 (Combinational Logic) then stop when you reach Breakout Exercise 4.1.

Questions

Q1. Do question 4.1 (chapter 4).

Q2. Do question 4.2 (chapter 4).

Q3. Do question 4.3 (chapter 4).

Q4. Do question 4.5 (chapter 4).