FAKULTI TEKNOLOGI DAN KEJURUTERAAN

PROGRAM	Diploma in IT System Support
COURSE NAME	Digital Electronics
COURSE CODE	DTS 4053
CREDIT HOURS	3
SYNOPSIS	This course covers the number systems, codes, logic functions and logic gates. The course focuses on the design of combinational logic including arithmetic and selector circuit. Introduction to sequential logic circuit is also included

COURSE STRUCTURE

CHAPTER	TOPICS
1	**Number System** 1.1 Decimal, binary, octal and hexadecimal 1.2 Conversion between numbering systems 1.3 Addition in Binary, octal and hexadecimal 1.4 Subtraction in Binary, octal and hexadecimal using 2's complement
2	**Codes and Parity** 2.1 BCD code, Gray code, ASCII code 2.2 Parity bit
3	**Logic gates and Function** 3.1 Logic Gates 3.2 Describing logic circuit algebraically 3.3 Implementing circuits from Boolean expressions
4	**Topic 4: Logic Simplification and design** 4.1 Sum of Product (SOP) 4.2 Product of Sum (POS) 4.3 Simplification using Boolean Algebra and DeMorgan's Theorem 4.4 Minimization using Karnaugh Map

5	**Arithmetic Circuits** 5.1 Half Adder 5.2 Full Adder 5.3 Parallel Adder 5.4 Parallel Subtractor
6	**Combinational Circuits** 6.1 Multiplexer 6.2 Demultiplexer 6.3 Encoder 6.4 Decoder
7	**Sequential Circuit** 7.1 Introduction to Sequential Circuit 7.2 Latch 7.3 Flip-Flop 7.4 Asynchronous Counter 7.5 Synchronous Counter 7.6 Register
References:	1. Tocci, R., Widmer, N. and Moss, G. (2016). Digital Systems; Principles and Applications (12th Edition). Upper Saddle River: Prentice Hall. 2. Mano, M.M. and Ciletti, M.D. (2018). Digital Design (6th Edition). Upper Saddle River: Prentice Hall. 3. Floyd, T.L. (2014), Digital Fundamentals (11th Edition), Upper Saddle River. Prentice Hall 4. A. Anand Kumar (2016) Fundamentals of Digital Circuits (4th Edition) PHI Learning