

18PEE65	DIGITAL SIGNAL PROCESSORS FOR POWER CONVERTERS	L	T	P	C
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<b>Course Objectives:</b>					
1.	To understand the basic concepts of discrete time signals, digital signal processors, programming and applications.				
<b>Unit I</b>	<b>INTRODUCTION to TMS 320C54X PROCESSOR</b>	<b>9</b>	<b>+</b>	<b>0</b>	
Need for digital signal processor - Basic architecture of DSP's – Architecture of TMS 320C54X processors- Addressing modes- Assembly instructions- Pipelining- Interrupts- Clock generator- Timer- Serial ports- Parallel ports- Host-port interface (HPI)					
<b>Unit II</b>	<b>TMS 320C67X PROCESSOR</b>	<b>9</b>	<b>+</b>	<b>0</b>	
Architecture of TMS 320C67X processor- CPU data paths and control. Addressing modes. Instruction set. Pipeline operation.					
<b>Unit III</b>	<b>PERIPHERALS AND INTERFACE</b>	<b>9</b>	<b>+</b>	<b>0</b>	
Interfacing with serial I/O- A/D, D/A converters- Parallel interfacing- Interfacing with RAM- EEPROMs - Wait state generation.-DSP tools: Assembler- Debugger- C compiler- Linker -loader.					
<b>Unit IV</b>	<b>ADVANCES IN DSP PROCESSORS</b>	<b>9</b>	<b>+</b>	<b>0</b>	
VLIW Architecture – Multiprocessor DSPs, SHARC, SIMB, MIMD Architectures and Analog Devices DSPs – introduction to FPGA – FPGA based DSP system – Architecture of TMS 320F28335					
<b>Unit V</b>	<b>MOTOR CONTROL APPLICATION</b>	<b>9</b>	<b>+</b>	<b>0</b>	
DSP-Based Implementation of DC-DC Buck-Boost Converters - DSP-Based Control of Matrix Converters - DSP based Switched reluctance motor control- DSP based brushless DC motor control, DSP based control of Permanent Magnet Synchronous Motor					
<b>Total (45+0)= 45Periods</b>					
<b>Course Outcomes:</b>					
<i>Upon completion of this course, the students will be able to:</i>					
CO1	:	<i>Understand the basic concepts of digital signal processor.</i>			
CO2	:	<i>Program the digital signal processor.</i>			
CO3	:	<i>Analyze interfacing of peripherals with DSP.</i>			
CO4	:	<i>Understand the advancements in DSP processors</i>			
CO5	:	<i>Programming of DSP for motor control.</i>			
<b>Text Books:</b>					
1.	B.Venkataramani et al. "Digital Signal processor –Architecture, Programming and Applications", TMH, New Delhi 2010, second edition.				
2.	S.Srinivasan & Avtar Singh, 'Digital Signal Processing, Implementations using DSP Microprocessors with Examples from TMS320C54X', Brooks/Cole, 2004.				
3.	Hamid A Jolijet and Steven G Campell, "DSP Based Electromechanical Motion Control" CRCPress 2003.				
4.	User guides Texas Instrumentation, Analog Devices, Motorola.				
5.	Sen M.Kuo & Woon-Seng S.Gan, Digital Signal Processors: Architectures, Implementations, and Applications, Printice Hall, 2004				

PO CO	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	<i>Understand the basic concepts of digital signal processor.</i>	1	1	1	1	1	1	1	1	1	2	1
CO2	<i>Program the digital signal processor.</i>	1	1	1	1	1	1	3	3	1	2	1
CO3	<i>Analyze interfacing of peripherals with DSP.</i>	1	1	2	2	2	1	2	1	1	2	1
CO4	<i>Understand the advancements in DSP processors</i>	1	1	2	2	3	1	2	3	1	2	1
CO5	<i>Programming of DSP for motor control.</i>	2	3	3	3	3	1	3	3	1	2	1