



Course: M.Tech. (Electronics & Communication Engineering)	Name of Faculty: Dr. Bijoy Antony Jose
Topic:18-437-0101 Embedded Architecture and Interfacing	Semester: FIRST
Lecture Hall: 118	Timings: as per CBCS - A

<i>Week and date</i>	<i>Lecture topics</i>	<i>Assignments</i>	<i>Remarks</i>
Week 1 (10 th July 19)	Module 1 <ul style="list-style-type: none"> Review of Processors and Embedded Systems, PIC. Performance and power 		
Week 2 (15 th July 19)	<ul style="list-style-type: none"> Moore's law, Amdahl's law Review of architectures in academia and industry 	Assignment-1 <ul style="list-style-type: none"> ➤ Addressing modes & ISA of x86 ➤ Problems in parallel processor performance 	
Week 3 (22 nd July 19)	<ul style="list-style-type: none"> RISC/CISC, Flynn's Classification, Endian-ness Superscalarity, Pipelining 		
Week 4 (29 th July 19)	Module 2 <ul style="list-style-type: none"> Pentium architecture Features of Pentium architecture Pipeline Hazards and conflicts 		
Week 5 (5 th Aug 19)	<ul style="list-style-type: none"> Performance optimizations in x86 Memory organization Caches, multi-level cache 		
Week 6 (12 th Aug 19)	<ul style="list-style-type: none"> Cache placement policies Cache performance Address Translation Paging and virtual memory 	Assignment-1 submission	
Week 7 (19 th Aug 19)	Module 3 <ul style="list-style-type: none"> ARM architecture basics Cortex M3 architecture Programming mode, registers, NVIC 		
Week 8 (26 th Aug 19)	First Internals		
Week 9 (2 nd Sep 19)	<ul style="list-style-type: none"> Graphics processors Hybrid architectures, GPU NVIDIA CUDA architecture 	Assignment-2 <ul style="list-style-type: none"> ➤ ARM ISA programs ➤ Programming Arm and x86 boards 	
Week 10 (16 th Sep 19)	Module 4 <ul style="list-style-type: none"> Review of PIC processor ISA Compare, Capture, PWM 		

<i>Onam Vacation</i>			
Week 11 (23 rd Sep 19)	<ul style="list-style-type: none"> • Timing and interrupts in PIC • Cyber Physical Systems • Internet of Things • Client Server model and cloud computing 		
Week 12 (30 th Sep 19)	<ul style="list-style-type: none"> • Development boards in industry • Arduino, Galileo, Raspberry PI 		
Week 13 (14 th Oct 19)	Second Internals		
Week 14 (21 st Oct 19)	Module 5 <ul style="list-style-type: none"> • Sensors and transducers • Bluetooth, Zigbee 		
Week 15 (28 th Oct 19)	<ul style="list-style-type: none"> • Interfacing I2C, SPI, USB • ADC types 		
Week 16 (4 th Nov 19)	<ul style="list-style-type: none"> • Interfacing RTC, PWM, LCD, Stepper motors 	<i>Assignment-2 submission</i>	
Week 17 (6 th Nov 19)	<i>Publication of Sessional</i>		
Week 18 (7 th Nov 19)	REVISION		