

<b>Module Code</b>	TF-3301		
<b>Module Title</b>	Microprocessor Systems		
<b>Degree/Diploma</b>	Bachelor of Engineering Degree		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	4	<b>Total student Workload</b>	8 hours/week
		<b>Contact hours</b>	4 hours/week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
<p>This module provides an introduction to microprocessor architecture, assembly language programming and the use of microcontrollers in implementing embedded systems. The internal architecture and operation of stored program microprocessors are examined in detail including arithmetic and logic units, special and general purpose registers, memory addressing modes and interrupts. Assembly programming techniques include data structures, branching, loops and subroutines are presented using simple design examples. Hardware and software techniques for I/O interfaces, both polled and interrupt driven are covered.</p>			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	30%	<ul style="list-style-type: none"> <li>- describe the functions and inter-relate the different microprocessor types</li> <li>- understand the functions of microprocessor components</li> </ul>	
Middle order :	30%	<ul style="list-style-type: none"> <li>- identify hardware limitations for a given network configuration</li> <li>- investigate different problems and solutions that may be encountered for different microprocessor architectures</li> </ul>	
Higher order:	40%	<ul style="list-style-type: none"> <li>- develop system requirements from a given user requirements</li> <li>- design, plan and justify suitable microprocessor to achieve a given objective</li> <li>- discuss the advantages/disadvantages of different options that are available</li> </ul>	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- The architecture and organization of a microcontroller</li> <li>- Structured, well-commented, understandable programs in assembly and in a higher-level language</li> <li>- Assembly language programs involving I/O devices</li> <li>- Programs to perform I/O and interrupts</li> <li>- Concepts and principles of system buses in the design of bus control logic and I/O interfaces using LSI supporting devices</li> <li>- Memory modules using ROM and RAM devices</li> </ul>			
<b>Assessment</b>	Formative assessment	Quizzes will be used to test and to give feedback for their learning	
	Summative assessment	Examination: 40% Coursework: 60% <ul style="list-style-type: none"> <li>- 2 class tests (10% each)</li> <li>- 2 assignments (20% each)</li> </ul>	