



University of Tehran
School of Electrical and Computer Engineering

Course:	8101305 – Computer Workshop									
Course type:	EE*						CE*			Credit: 1
	Com	E	P	B	Con	D	SW	HW	IT	
	Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Elective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Level:	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>									
Co-requisite(s):	None.									
Prerequisite(s):	None.									
Prerequisite by topic:										
Textbook(s):	[1] Raspberry Pi User Guide, Eben Upton and Gareth Halfacree.									
Coordinator:	Mohammadi, Professor, School of ECE									
Goals:										
Outcome:	<p>Upon successful completion of the course, students will be able</p> <ol style="list-style-type: none"> 1. Raspberry Pi complete system 2. Introduction with major scripting commands of Linux 3. Introduction with time functions to implement data transfer with general IO systems 4. Socket programming in Raspberry Pi system 									
Topics:	<ol style="list-style-type: none"> 1) Complete Computer System Introduction including all modules with existing types such as processors, Memory hierarchy, expansion cards, and power system 2) Computer system assembly 3) Computer system diagnosis 4) Bios configuration of the computer system 5) IC types introduction, simple board prototyping 6) Introduction with soldering circuit boards 7) Single board computer systems 8) Raspberry Pi Introduction 9) OS installation with remote connection 10) Cross-compiler introduction 11) C++ programming in Linux platform 12) Introduction with GCC/GDB and ARM assembly programming 13) Unix/ Linux commands 14) Shell script introduction 15) Introduction with REGEX (regular expression) 									

	16) Introduction with AWK (Aho, Weinberger, Kernighan) 17) Introduction with SED (Stream editor) 18) Introduction with time functionality in raspberry pi 19) Implementation of general IO in raspberry pi 20) Introduction with network principals (TCP/UDP protocols) 21) File transfer between raspberry pi and computer system 22) Implementing simple client-server communication with raspberry pi
Computer usage:	1- Full computer system 2- Mouse 3- Keyboard 4- Raspberry pi board 5- LAN connection
Assignments:	No homework assignments
Projects:	1- Embedded application implementation with Raspberry Pi system
Grading:	Assignments: 60 % Projects: 20 % Quizzes: 0 % Midterm exams: 0% Final exam: 20 %
Further readings:	[1] Official Raspberry Pi Projects Book
Prepared by:	
Date:	

*EE: Electrical Engineering		CE: Computer Engineering	
Com	Communications	SW	Software
E	Electronics	HW	Hardware
P	Power	IT	Information Technology
B	Bioelectronics		
Con	Control		
D	Digital System		