

EEC120 Teaching/Evaluation Plan

Plan for EEC120 Computer Programming I

Week	Lecture	Laboratory	Notes
Week 01	- Course Introduction - Introduction to Computer Systems - Hardware (CPU, input, output) - Software (Kernel, OS, userspace) - Numbers & Logic - Introduction to Computer Programming - Algorithms: instruction sequencing - Flow-charts: visual representation - Interpreters ⇒ scripts - Compiler and Linkers ⇒ binary executables	Tools (compiler/IDE) Installation/Setup	[VIDEO GUIDE]???
Week 02	- Introduction to C language - Basic code structure (syntax) - Function and code-block - Simple text display - Creating first executable binary - Syntax (language) and semantic (decision logic) errors - Simple debugging	Explore building binary from c source code	[VIDEO GUIDE]???

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Week 03	• C Variables (data storage) 1. data types and sizes • C Operators 1. arithmetic and logic 2. boolean vs bitwise • Data processing 1. equations and tasks	• [DEVELOPMENT WORK]	Assignment 1 Queue
Week 04	• Bare-metal Programming (Lecture Part 3) ◦ single task, multi-tasking ◦ event triggered	• Lab Work 2 (cont.) • [DEVELOPMENT WORK] • my1barepi: t08_uart • my1barepi: t09_bluetooth ◦ needs bluetooth terminal app	
Week 05	• Bare-metal on Raspberry Pi (Lecture Part 3) ◦ Timer access ◦ Interrupt Access	• Lab Work 2 (cont.) • [DEVELOPMENT WORK] • my1barepi: t10_gsm • my1barepi: t11_gps • my1barepi: t12_rtc	Assignment 1 Due (5%)
Week 06	• Simple Applications ◦ traffic light control ◦ temperature control ◦ input signal detection/measurement	• Lab Work 3 • [DEVELOPMENT WORK] • practical programming: • detect edges • measure pulse width • measure frequency • generate pwm (single/periodic)	Lab Assessment 1 (10%)

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Week 07	- Hardware Platform 2 (Lecture Part 4) - Board (GTUC51B001) specifications - Microcontroller (NXP P89V51RD2) details	Lab Work 3 (cont.) [DEVELOPMENT WORK] - system integration	Mid-term Examination (20%)
Week 08	- Hardware Platform 2 (cont.) (Lecture Part 4) - Features: I/O, Timer, Interrupt	Lab Work 3 (cont.) [DEVELOPMENT WORK] - system integration	Assignment 2 Queue
Week 09	- Embedded OS on Raspberry Pi - running Raspbian Linux - basic I/O access	Lab Work 4 [PREPARATION WORK] - prepare raspbian (pgt302pi image) - change hostname (make unique) [DEVELOPMENT WORK] - my1linuxpi: gpio	
Week 10	- Embedded OS on Raspberry Pi - running Raspbian Linux - basic peripheral interface	Lab Work 4 (cont.) [PREPARATION WORK] - make sure avahi/mdns is running on pi - make sure bonjour/avahi/mdns is available on host [DEVELOPMENT WORK] - remote access using putty - my1codelib: run custom server - my1linuxpi: run gpio http server	Assignment 2 Due (5%)
Week 11	- Setup/running simple data server - server side programming (C @ PHP)	Lab Project	Lab Assessment 2 (10%)

Week	Lecture	Laboratory	Notes
Week 12	• Setup/running simple data server ◦ client side programming (C @ HTML/CSS/JAVASCRIPT)	• Lab Project (cont.)	
Week 13	• Practical Applications ◦ requirements and considerations	• Lab Project (cont.)	
Week 14	• Practical Applications (cont.) ◦ requirements and considerations	• Lab Project (cont.)	Lab Project Due (10%)

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