

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 $\Rightarrow$ scripts - Compiler and Linkers $\Rightarrow$ binary executables	Tools (compiler/IDE) Installation/Setup	[VIDEO GUIDE]???
Week 02	- Introduction to C language - Basic code structure (syntax) - Function and code-block - Creating first executable binary - Syntax (language) and semantic (decision logic) errors - Simple debugging	Explore building binary from c source code	[VIDEO GUIDE] on creating binary?
Week 03	- Introduction to C language (cont.) - Variables and Operators - Data processing: equations and tasks	[DEVELOPMENT WORK]	Assignment 1 Queue

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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%)
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	Lecture	Laboratory	Notes
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 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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