ELEC 2009 MICROPROCESSOR SYSTEMS

Credit Points 10

Legacy Code 300076

Coordinator Qi Cheng (https://directory.westernsydney.edu.au/search/name/Qi Cheng/)

Description This subject introduces students to the internal structure of microprocessors used in computing systems and their fundamental operations. Topics include assembly language programming, interrupt processing, CPU functions, memory organization, and peripheral programming. The microprocessor and embedded processors are discussed. Students write assembly language programs, debug and create executable files to control microprocessor systems.

School Eng, Design & Built Env

Discipline Computer Engineering

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) ELEC 1001

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Write assembly language programs
2. Debug assembly programs and create executable files
3. Describe interrupt (exception) processing
4. Explain CPU hardware functions and address decoding (memory/IO)
5. Program peripherals

Subject Content

Instruction format, instruction types and assembler directives
Memory segmentation
20-bit address formation and determination
Addressing modes
Types of instructions
Stack operation and access
Assembly programming
Interrupt processing
BIOS and DOS function calls
CPU structure and pin functions
Instruction execution cycles and system timing diagram
Memory and memory address decoding
Memory-mapped and interrupt-driven I/Os
Peripheral Programming

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Numerical Problem Solving	around 10 pages (each)	25	N	Individual
Multiple Choice	30 minutes (per quiz)	10	N	Individual
Practical	3 hours (per practical)	10	N	Individual
Numerical Problem Solving	2 hours	55	N	Individual

Prescribed Texts

- Triebel, W. A., & Singh, A. J. (2014). The 8088 and 8086 microprocessors : programming, interfacing, software, hardware, and applications : including the 80286, 80386, 80486, and Pentium processor families (4th International ed.). Upper Saddle River, N.J.: Pearson.

Teaching Periods

Sydney City Campus - Term 1 (2022)

Sydney City

Day

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2009_22-SC1_SC_D#subjects)

Spring (2022)

Penrith (Kingswood)

Day

Subject Contact Qi Cheng (https://directory.westernsydney.edu.au/search/name/Qi Cheng/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2009_22-SPR_KW_D#subjects)

Parramatta - Victoria Rd

Day

Subject Contact Qi Cheng (https://directory.westernsydney.edu.au/search/name/Qi Cheng/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2009_22-SPR_PS_D#subjects)

Sydney City Campus - Term 3 (2022)

Sydney City

Day

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2009_22-SC3_SC_D#subjects)

Sydney City Campus - Term 2 (2023)

Sydney City

On-site

Subject Contact Eileen An (https://directory.westernsydney.edu.au/search/name/Eileen An/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC2009_23-SC2_SC_1#subjects)

Spring (2023)

Penrith (Kingswood)

On-site

Subject Contact Qi Cheng (https://directory.westernsydney.edu.au/search/name/Qi Cheng/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC2009_23-SPR_KW_1#subjects)

Parramatta City - Macquarie St

On-site

Subject Contact Qi Cheng (https://directory.westernsydney.edu.au/search/name/Qi Cheng/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC2009_23-SPR_PC_1#subjects)