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| Department of Computer Engineering | |
|---|---|
| **Microprocessor for Mechatronics II (66474)** | |
| **Total Credits** | **3** |
| **major compulsory** | |
| **Prerequisites** | P1 : Microprocessor for Mechatronics I (66374) |

**Course Contents**

Clock and timing of control signals, bus operations, memory interfacing. I/O interface and peripheral devices. Interrupts. Serial and parallel port interface. Configurable I/O ICs. I/O Assembly Programming.

| | Intended Learning Outcomes (ILO's) | Student Outcomes (SO's) | Contribution |
|---|---|---|---|
| 1 | The ability to work with, interface, and describe the functionality of clock generator, bus buffering, timing, and to interface the different memory sorts to Intel microprocessors. | E | 40 % |
| 2 | The ability to work with and design the circuits for interfacing different generic I/O peripherals, and to work with programmable interval timer, programmable communications interfaces, ADC, DAC, and interrupts | C | 40 % |
| 3 | The ability to work with and describe the functionality of direct memory access, arithmetic coprocessor, and to have an overview of contemporary issues related to Intel microprocessors | J | 20 % |

**Textbook and/ or Refrences**

The intel Microprocessors 8th edition by Barry B. Brey

| Assessment Criteria | Percent (%) |
|---|---|
| First Exam | 20 % |
| Second Exam | 20 % |
| Projects | 10 % |
| Final Exam | 50 % |

**Course Plan**

| Week | Topic |
|---|---|
| 1 | 8086/8088 hardware specifications |
| 2 | Clock generator (8284A) |
| 3 | Bus timing, buffering, and latching |
| 4- 5 | Memory Devices and Address Decoding |
| 5- 6 | Memory interfacing to the Intel microprocessor |
| 6- 7 | I/O interface, I/O port address decoding |
| 7- 9 | Programmable Peripheral Interface and Programmable Interval Timer |
| 9- 11 | Programmable Communications Interface, ADC, and DAC |
| 11- 13 | Interrupts |
| 13- 15 | Direct memory access and arithmetic coprocessor |
| 16 | Contemporary issues |