

بسم الله الرحمن الرحيم

Republic of Iraq  
The Ministry of Higher  
Education  
& Scientific Research



University: Diyala  
College: Engineering  
Department: Communications  
Stage: Third year  
Lecturer name: Hussein Sh.  
Mogheer  
Qualification: Master  
Place of work: Department of  
Communications

### Flow up the implementation of course syllabus

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                      |            |            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------|------------|------------|
| <b>Course Instructor</b>  | Hussein Shakor Mogheer                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                      |            |            |
| <b>E-mail</b>             | <a href="mailto:huseinshookor@yahoo.com">huseinshookor@yahoo.com</a>                                                                                                                                                                                                                                                                                                                                                                               |          |                      |            |            |
| <b>Title</b>              | Microprocesspor                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                      |            |            |
| <b>Course Coordinator</b> | ۳ hours weekly                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |                      |            |            |
| <b>Course Objective</b>   | Teaching microprocessor concepts at the undergraduate level in technology and engineering cover both hardware and software based 8086 microprocessor family.                                                                                                                                                                                                                                                                                       |          |                      |            |            |
| <b>Course Description</b> | The subject divided in to several chapters, as follow:<br>Chapter One: Memory types & expansion.<br>Chapter Two: Microprocessor types.<br>Chapter Three: MPU hardware.<br>Chapter Four: Interrupt and DMA.<br>Chapter Five: Multiprocessing System<br>Chapter Six: I/O interfaces.<br>Chapter Seven: MPU software.                                                                                                                                 |          |                      |            |            |
| <b>Textbook</b>           | <ol style="list-style-type: none"> <li>Barry B. Brey, The 8086/8088 MPU, Architecture, programming and interfacing, 8th edition, Prentice Hall, 2008.</li> <li>Walter Triebel, Avtar Singh, 8088 and 8086 Microprocessors, the: Programming, Interfacing, Software, Hardware, and Applications, 4th edition, Prentice Hall, 2002.</li> <li>Microprocessor architecture, programming and applications with 8085/8080A by Ramesh Gaonkar.</li> </ol> |          |                      |            |            |
| <b>Course Assessments</b> | First Term                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mid-Year | 2 <sup>nd</sup> Term | Laboratory | Final Exam |
|                           | 20%                                                                                                                                                                                                                                                                                                                                                                                                                                                | -        | 20%                  | 10%        | 50%        |
| <b>General Notes</b>      | -                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                      |            |            |



### Course Weekly Outline

| Week           | Date       | Topes Covered                                                                                                                                                                                                                                                                      | Lab. Experiment                | Notes |
|----------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------|
| ١              | 29/9/201٤  | ROM, PROM, EAPROM, RAM. Static and dynamic memories, volatile and nonvolatile memory, data, address and both memory expansion, linear & matrix expansion, memory cycle time, virtual memory, and examples on a ROM as a look up table.                                             | 8085 Microprocessor Laboratory | -     |
| 2              | 05/10/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 3              | 12/10/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 4              | 19/10/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 5              | 26/10/201٤ | 4,8,16,32and64 bit MPUs,,8085,8086 family of MPUs8086,8088,80186,80286,80386,80486,the Pentium processor.                                                                                                                                                                          |                                |       |
| 6              | 2/11/201٤  |                                                                                                                                                                                                                                                                                    |                                |       |
| 7              | 9/11/201٤  |                                                                                                                                                                                                                                                                                    |                                |       |
| 8              | 16/11/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 9              | 23/11/201٤ | Angle chip microprocessor. 8085/8086, memory maps, logical and physical memory, CPU architecture, pin assignment, memory map of segments .min. & max. Mode configurations system bus timing, detail of ICs in both modes, 8282,8286,8284,8288.                                     |                                |       |
| 10             | 30/11/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 11             | 7/12/201٤  |                                                                                                                                                                                                                                                                                    |                                |       |
| 12             | 14/12/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 13             | 21/12/201٤ | Programmable Interrupt controller PIC (8259), Interrupt types, Interrupt pointer tables, external and internal Interrupts with the priority, connection of PIC in min. and max. mode, Interrupt operation, cascade connection of 8259,DMA controller 8237,modes of DMA controller. |                                |       |
| 14             | 28/12/201٤ |                                                                                                                                                                                                                                                                                    |                                |       |
| 15             | 4/1/201٥   |                                                                                                                                                                                                                                                                                    |                                |       |
| Mid-Year Break |            |                                                                                                                                                                                                                                                                                    |                                |       |
| ١٦             | 22/2/201٥  | Closely coupled configuration, coprocessor configration8089 NDP&8089IOP, 8086 architecture details and 8289 Bus arbiter in max. mode, methods of connection.                                                                                                                       | 8086 Microprocessor Laboratory | -     |
| 17             | 1/3/201٥   |                                                                                                                                                                                                                                                                                    |                                |       |
| 18             | 8/3/201١٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| 19             | 15/3/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| 20             | 22/3/201٥  | Programmed, interrupt, block transfer, DMA, practical examples, types of interfaces, serial & parallel communication, microcomputer.                                                                                                                                               |                                |       |
| ٢١             | 29/3/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| 22             | 5/4/201٥   |                                                                                                                                                                                                                                                                                    |                                |       |
| 23             | 12/4/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| 24             | 19/4/201٥  | Addressing modes, 8085/ 8086 machine language, assembly language__instruction, arithmetic& logic instruction , input/output operation ,conditional, unconditional branch and loop instruction, examples on assembly language programs.                                             |                                |       |
| ٢٥             | 26/4/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| ٢٦             | 3/5/201٥   |                                                                                                                                                                                                                                                                                    |                                |       |
| ٢٧             | 10/5/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| ٢٨             | 17/5/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| ٢٩             | 24/5/201٥  |                                                                                                                                                                                                                                                                                    |                                |       |
| ٣٠             | 1/6/201٥   |                                                                                                                                                                                                                                                                                    |                                |       |