# OUTLINE OF LEARNING PROGRAMS
# LEARNING PLAN UNITS
# COURSE CONTRACT

## COMPUTER ORGANIZATION AND ARCHITECTURE
## CODE : PAC 137

**STUDY PROGRAM OF COMPUTER SCIENCE**
**DEPARTEMENT OF MATHEMATICS - FACULTY OF MIPA**
**DIPONEGORO UNIVERSITY**

# TEACHING – LEARNING CONTRACT

**Course Title : Computer Organization and Architecture**

**Code : PAC**

**Credit : 3**

**Semester : III**

## 1. Course Description

Computer Organization and Architecture is studying about computer design, computer technology, and its components.

## 2. General Instructional Aim

After attend this lecture the student are expected to explain difference between computer organization and computer architecture, and also how working of computer component from program logic machine language, up to operating system logic.

## 3. Lecture Strategic

This lecturing method use discourse accompanied with praktikum. Each participant expected to earn active participate to ask concepts or things which still not yet been comprehended and or submit good idea under consideration in the form of personal opinion which obtained from fact exist in its environment or which obtained from source of bibliography which have been read.

## 4. References

Reference book which used in this coure is:


1. Anderson, A John. Foundations of Computer Technology. Chapman & Hall. London. 1997. [AND1997]

2. Malvino, A. Paul. Computer Digital Elektronics. Introductions Microcomputers.. McGraw-Hill. 1992. [MAL1992]

3. Putra, Agfianto Eko. Bahasa Assembly dengan EMU 8086. Gava Media. Yogyakarta.2005. [PUT2005]

4. Stalling, William. Computer Organization and Architecture : Designing for Performance, 7e. Prentice-Hall. New Jersey.2001. [STA2001]

## 5. Scoring Criteria

Criteria of scoring in this course is :

| scoring | value |
|---|---|
| A | 4.0 |
| AB | 3.5 |
| B | 3.0 |
| BC | 2.5 |
| C | 2.0 |
| CD | 1.5 |
| D | 1.0 |
| E | 0.0 |

Determination of scoring criteria is used weighted such as :

| No | Component | Percentage |
|---|---|---|
| 1 | Quiz and litle task | 15 |
| 2 | Paper | 15 |
| 3 | Discusion | 10 |
| 4 | Midterm | 30 |
| 5 | Final exam | 30 |

## 6. Lecture Schedule

| Week | Subject | Sub Subject | References |
|---|---|---|---|
| I | Introduction of Computer Organization and Architecture | 1. Congeniality computer organization and computer architecture.<br>2. Atrribute organization, and architectur | a. [AND1997]<br>b. [STA2001] |

| | | | |
|---|---|---|---|
| | | 3. Generations processor technology | |
| II | Structure and Function of Computers | 1. Main component<br>2. Function components.<br>3. Computers structure and function<br>4. Data flow and controls | a. [AND1997]<br>b. [STA2001] |
| III,IV | Computers-SAP Architecture | 1. Computers-SAP (Simple as Possible ) Architecture<br>2. Set instructions SAP-computer.<br>3. Logical Programming SAP-computers<br>4. Assembler Programming, and Machine Language SAP | a. [MAL1992] |
| V | Microprocessor intel 80x86 architecture | 1. Components of microprocessor intel 80x86<br>2. Data register, segment register, index register, pointer register<br>3. Intructions pointer<br>4. Register flag | a. [MAL1992]<br>b. [PUT2005] |

| | | | |
|---|---|---|---|
| VI,VII | Assembler intel 80x86 | 1. Data tranfer intructions<br>2. Aritmatich intructions<br>3. Bits manipulations<br>4. Program control<br>5. Interuptins | a. [MAL1992]<br>b. [PUT2005]<br>c. [STA2001] |
| VIII | Microprocessor | 1. XT and AT processor<br>2. Chipset<br>3. Addressing<br>4. Main board | a. [AND1997]<br>b. [MAL1992] |
| IX | Memory | 1. Memory<br>2. Memory types<br>3. Memory Technology<br>4. Addres configurations<br>5. Memory hierarchi | a. [AND1997]<br>b. [STA2001] |
| X,XI | I/O System | 1. Terminals<br>2. Visual display unit (VDU)<br>3. Keyboards, joystick<br>4. Input device<br>5. Output device | a. [AND1997] |
| XII | Bus and system comunications | 1. Varians Bus<br>2. Bus levels<br>3. System Bus<br>4. Data transmision | a. [AND1997]<br>b. [STA2001] |

| | | | |
|---|---|---|---|
| XIII | Operating System | 1. Instalations operating system (windows, linux)<br>2. Scedulling process<br>3. Memory managemen<br>4. Interuptions | a. [AND1997]<br>b. [STA2001] |

# LEARNING PROGRAM OUTLINE

**Course Title : Computer Organization and Architecture**

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**Semester : III**

**Course Description**

Computer Organization and Architecture is studying about computer design, computer technology, and its components.

**General Instructional Aim**

After attend this lecture the student are expected to explain difference between computer organization and computer architecture, and also how working of computer component from program logic machine language, up to operating system logic.

| No | Specific Instructional Aim | Subject | Sub Subject | Duration | References |
|---|---|---|---|---|---|
| 1. | After studying this course, the student are expected to be able to give clarification about concept of computer organization and computer architecture. | Introduction of Computer Organization and Architecture | 1. Congeniality computer organization and computer architecture.<br>2. Atrribute organization, and architectur<br>3. Generations processor technology | 150 minutes | a. [AND1997]<br>b. [STA2001] |
| 2. | After studying this course, the student are expected to be | Structure and Function of Computers | 1. Main component<br>2. Function components. | 150 minutes | a. [AND1997]<br>b. [STA2001] |

| | | | | | |
|---|---|---|---|---|---|
| | able to give clarification about structure and function components of computer | | 3. Computers structure and function<br>4. Data flow and controls | | |
| 3. | After studying this course, the student are expected to be able to explain computers-SAP architecture, and its programming | Computers-SAP Architecture | 1. Computers-SAP (Simple as Possible ) Architecture<br>2. Set instructions SAP-computer.<br>3. Logical Programming SAP-computers<br>4. Assembler Programming, and Machine Language SAP | 2x150 minutes | a. [MAL1992] |
| 4. | After studying this course, the student are expected to be able to explain microprocessor intel 80x86 | Microprocessor intel 80x86 architecture | 1. Components of microprocessor intel 80x86<br>2. Data register, segment register, index register, pointer register<br>3. Intructions pointer<br>4. Register flag | 150 minutes | a. [MAL1992]<br>b. [PUT2005] |

| | | | | | |
|---|---|---|---|---|---|
| 5. | After studying this course, the student are expected to be able to explain about set instructions of microprocessor intel 80x86 | Assembler intel 80x86 | 1. Data tranfer intructions<br>2. Aritmatich intructions<br>3. Bits manipulations<br>4. Program control<br>5. Interuptins | 2x150 minutes | a. [MAL1992]<br>b. [PUT2005]<br>c. [STA2001] |
| 6. | After studying this course, the student are expected to be able to explain about microprocessor varians | Microprocessor | 1. XT and AT processor<br>2. Chipset<br>3. Addressing<br>4. Main board | 150 minutes | a. [AND1997]<br>b. [MAL1992] |
| 7. | After studying this course, the student are expected to be able to explain about memory technology | Memory | 1. Memory<br>2. Memory types<br>3. Memory Technology<br>4. Addres configurations<br>5. Memory hierarchi | 150 minutes | a. [AND1997]<br>b. [STA2001] |
| 8. | After studying this course, the student are expected to be able to explain about input output system components | I/O System | 1. Terminals<br>2. Visual display unit (VDU)<br>3. Keyboards, joystick<br>4. Input device<br>5. Output device | 150 minutes | a. [AND1997] |

| | | | | | |
|---|---|---|---|---|---|
| 9. | After studying this course, the student are expected to be able to explain about bus system, and communication system | Bus and system comunications | 1. Varians Bus<br>2. Bus levels<br>3. System Bus<br>4. Data transmision | 150 minutes | a. [AND1997]<br>b. [STA2001] |
| 10. | After studying this course, the student are expected to be able to explain about operating system | Operating System | 1. Instalations operating system (windows, linux)<br>2. Scedulling process<br>3. Memory managemen<br>4. Interuptions | 150 minutes | a. [AND1997]<br>b. [STA2001] |

References:


Anderson, A John. Foundations of Computer Technology. Chapman & Hall. London. 1997. [AND1997]

Malvino, A. Paul. Computer Digital Elektronics. Introductions Microcomputers.. McGraw-Hill. 1992. [MAL1992]

Putra, Agfianto Eko. Bahasa Assembly dengan EMU 8086. Gava Media. Yogyakarta.2005. [PUT2005]

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