

**Course name** : **Electronic Health Records**  
Course code : KUI 7801  
Credit : 3

**COURSE COORDINATOR**

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**TEAM TEACHING**

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**PREREQUISITE**

none

**COURSE DESCRIPTION**

This course is designed to introduce electronic health record (HER) . HER is a digital version of a patient’s paper chart. EHRs are real-time, patient-centered records that make information available instantly and securely to authorized users. While an EHR does contain the medical and treatment histories of patients, an EHR system is built to go beyond standard clinical data collected in a provider’s office and can be inclusive of a broader view of a patient’s care. EHRs can:

- Contain a patient’s medical history, diagnoses, medications, treatment plans, immunization dates, allergies, radiology images, and laboratory and test results
- Allow access to evidence-based tools that providers can use to make decisions about a patient’s care
- Automate and streamline provider workflow

One of the key features of an EHR is that health information can be created and managed by authorized providers in a digital format capable of being shared with other providers across more than one health care organization. EHRs are built to share information with other health care providers and organizations – such as laboratories, specialists, medical imaging facilities, pharmacies, emergency facilities, and school and workplace clinics – so they contain information from all clinicians involved in a patient’s care.

### **LEARNING OBJECTIVES**

The objective of the course is to:

1. Introduce the theoretical concept of electronic health record
2. Introduce implementation strategy
3. Introduce the meaningful use of electronic health records

### **COURSE LEARNING OUTCOME**

After the completion of the course, students should:

1. understand the theoretical concept of electronic health record
2. understand implementation strategy
3. understand the meaningful use of electronic health records

### **STUDENTS EVALUATION**

|  |      |
|--|------|
| 1. Quizzes                               | 10%  |
| 2. attendance and participation at class | 40%  |
| 3. Paper assignment (1)                  | 15%  |
| 4. Presentation (2)                      | 15%  |
| 5. Final exam                            | 20%  |
| Total                                    | 100% |

Mark will be grade according to the following score:

| <b>Makr</b> | <b>Scale</b> | <b>Percentage</b> |
|-------------|--------------|-------------------|
| A           | 4.0          | 93% - 100%        |
| A-          | 3.75         | 90% - 92%         |
| B+          | 3.50         | 87% - 89%         |
| B           | 3.25         | 83% - 86%         |
| B-          | 3.00         | 80% - 82%         |
| C+          | 2.75         | 77% - 79%         |
| C           | 2.50         | 73% - 76%         |
| C-          | 2.25         | 70% - 72%         |

|    |      |                 |
|----|------|-----------------|
| D+ | 2.00 | 67% - 69%       |
| D  | 2.75 | 63% - 66%       |
| D- | 2.50 | 60% - 62%       |
| E  | 2.25 | Kurang dari 60% |

## LEARNING PROCESS

This is a hands-on, project-oriented class. Most weeks will include classroom lecture and computer lab time. There will be several homework projects assigned throughout the term. Labs work is essential for students to develop the basic skills needed to complete the deeper and more open-ended project assignments. Additional time in the lab will be offered for students who want more help with the online portion of their work. Lab work may also be completed on students' own machines at any time

## COURSE AGENDA

### Lecture 1 Introduction to EHR

**[Date]**     Learning objectives:  
To introduce the theoretical concept of EHR and the link with public health and medicine including the relevance to health policy and management

References:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

### Lecture 2 Legal issues and health care information

**[Date]**     Learning objectives :  
Discuss legal issues and obstacles on implementing EHR and HIS

References:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

### Lecture 3 EHR development strategy

**[Date]**     Learning objectives :  
Introduce strategy for development and discuss advantage/disadvantages of each strategy

References:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The

Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

#### **Lecture 4 EHR demonstration**

**[Date]**     Learning objectives :  
Discuss function and features of the existing EHR

References:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014
- Edwards D, Stajich J, Hansen D. Bioinformatics Tools and Applications. Edwards D, editor. Media. Springer; 2009.

#### **Lecture 5 EHR implementation**

**[Date]**     Learning objectives :  
Discuss strategy on implementation  
Discuss project management on EHR  
Discuss workflow on implementing EHR

Reading:

1. Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

#### **Lecture 6 Hospital Information system integration**

**[Date]**     Tujuan pembelajaran:  
Introduce Inpatient data managemet  
Introduce outpatient data managemet  
Data integration

Reading:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

#### **Lecture 7 meaningful use of EHR**

**[Date]**     Learning objectives :  
Introduce the meaningful use of EHR

References:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

**Lecture 8 privacy issues**

**[Date]**    Learning objectives :  
Introduce and discuss the privacy issue on EHR

References:

W. Edward Hammond, Charles Jaffe, James J. Cimino, and Stanley M. Huff. Standards in Biomedical Informatics in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

**Lecture 9 EHR evaluation**

**[Date]**    Learning objectives :  
Introduce and discuss the method of evaluation of EHR

References:

Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

**Lecture 10 Human-Organization-Technology issues on EHR implementation**

**[Date]**    Learning objectives :  
1. Discuss the issues related to human, organization and technological issue on implementing EHR

References:

- Edward H. Shortliffe and Marsden S. Blois. Biomedical Informatics: The Science and the Pragmatics. in Biomedical Informatics, Computer Applications in Health Care and Biomedicine, 4th Edition" E.H. Shortliffe, J.J. Cimino (Eds.), Springer, 2014

**Lecture 11 Group presentation 1**

**[Date]**    Learning objectives :  
Students presentation related to assignment

References:

### **Lecture 12 Group presentation 2**

[Date] Learning objectives :  
Students presentation related to assginment

References:

### **EXAMINATION**

[Date]

### **LABORATORY WORKS AND TUTORIALS**

Tutorial akan dilakukan sebanyak 6 kali dengan waktu kegiatan masing-masing 90 menit disertai dengan satu kali site visit ke fasilitas kesehatan.

### **Tutorial 1 Primary Care Medical Record**

[Date] Tujuan pembelajaran:  
Introcuse EHR for primary care

Reading:

Assignment:

### **Tutorial 2 Hospital Information System**

[Date] Tujuan pembelajaran  
Introduce Hospital Information System

Reading:

Assignment:

### **Field visit to PHC/Hospital**

[Date] Tujuan pembelajaran  
Learn technique for data mining in health

Reading:

Assignment:

Analyse and evaluati EHR on PHC and hospital