Component 4: Introduction to Information and Computer Science

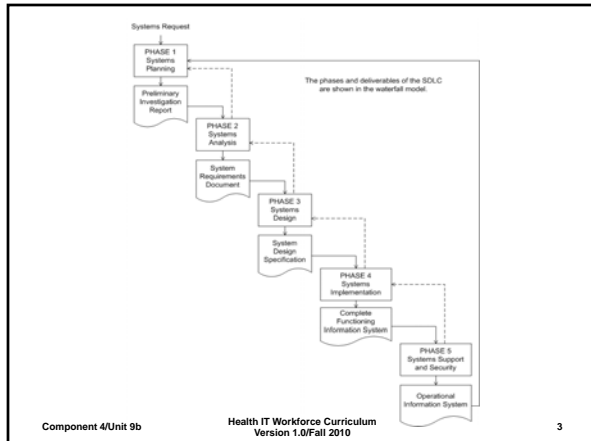Unit 9/Part b: Components and Development of Large Scale Systems

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Topic II: Systems Development Lifecycle (SDLC)

1. Systems Planning
2. Systems Analysis
3. Systems Design
4. Systems Implementation
5. Systems Support and Security

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1. Systems Planning

- Analyzing the business case
- Managing systems projects

Analyzing the business case

- Capture knowledge about how the business will function both with and without the final solution.
- Prove the solution meets the needs of the business to enable funding, approval and prioritization.
- Provide a consistent message to different audiences.

Managing systems projects

- Planning
- Scheduling
- Monitoring
- Controlling
- Reporting

2. Systems Analysis

- Requirements modeling
- Data and process modeling
- Object modeling
- Logical vs physical models
- Development strategies

Requirements Modeling

- Definition
- Tools and Techniques
  - Fact-finding
  - Interviews
  - System requirements checklist
  - Future growth

Requirements Modeling

- Requirements Modeling Methods
  - Joint Application Development (JAD)
  - Rapid Application Development (RAD)
  - Agile Methods

JAD, RAD and agile methods all use teams
made up of users, managers and IT staff.

Data and Process Modeling

- Data Flow Diagram (DFD)
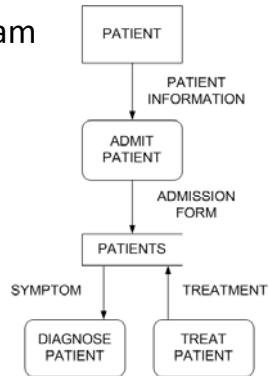- Data Dictionary
- Process Description Tools

Data Flow Diagram

- Processes
- Data Flows
- Data Stores
- External Entities

PATIENT

PATIENT INFORMATION

ADMIT PATIENT

ADMISSION FORM

PATIENTS

SYMPTOM   TREATMENT

DIAGNOSE PATIENT   TREAT PATIENT

Data Dictionary

- aka Data Repository
- Data Element = Data Item = Field
- Data Structures = Records

Process Description Tools

- Modular design
  - Logical or Control Structures
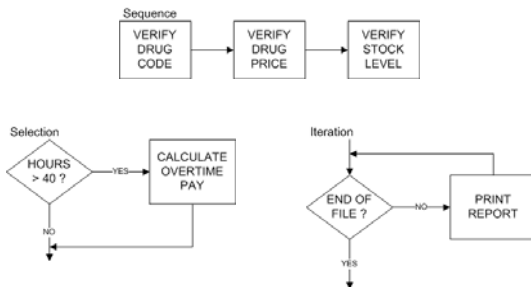- Structured English
- Decision tables
- Decision trees
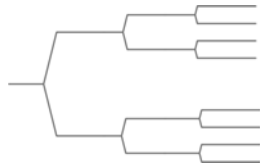
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Logical or Control Structures

Sequence

VERIFY DRUG CODE → VERIFY DRUG PRICE → VERIFY STOCK LEVEL

Selection

HOURS > 40 ? —YES→ CALCULATE OVERTIME PAY

NO

Iteration

END OF FILE ? —NO→ PRINT REPORT

YES

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