Instructional Design

&

Educational Technology

(CIEd 3211)

Credit Hours: 3

- Out lines of the course
- The course has seven chapters

Chapter One: Introduction to Instructional Design

1. Concept of instructional Design and related terms
2. Assumptions of instructional Design
3. Principles of instructional design
4. Elements of Instructional Design
5. Models of Instructional Design

Chapter Two: Educational Technology

1.Evolution Of Education Technology
2.Meaning Of Educational Technology
3.Characteristics Of Educational Technology
4.Nature Of Educational Technology
5.Objectives Of Educational Technology
6.Scope Of Educational Technology
7.Advantages Of Educational Technology
8.Forms Of Educational Technology

Chapter Three: Media, Technology and Learning

1. Learning Theories
2. The Roles of Media and Technology in Learning
3. Media and Technology Assisted Instructional Method

Chapter Four: Exploring 21st Century Learning

1. Frameworks of 21st Century Learning

2.Teacher Use of Technology and Media

3.Student Use of Technology and Media

4. The Concept of Digital and Media Literacy in the Area of Education

5.The Classroom Continuum: Traditional to Digital

Chapter Five: Understanding 21st Century Learners

1. Characteristics of 21st Century Learners
2. Learning Theories
3. Information And Instruction
4. Principles of Effective Instruction
5. Principles of Effective Technology Utilization
6. Principles of Effective Media Utilization

Chapter Six: Integrating Technology and Media into Instruction: The ASSURE Model

1. Analyze Learners
2. State Standards and Objectives
3. Select Strategies, Technology, Media, and Materials
4. Utilize Technology, Media, and Materials
5. Require Learner Participation
6. Evaluate and Revise

Chapter Seven: Using Multimedia

1. Instructional Media Materials: Their Nature and Use for Learning
    1. Manipulative
    2. Field Trips
    3. Display Surfaces
    4. Printed Materials, etc
2. Free and Inexpensive Materials

Chapter one:

Introduction to Instructional Design

1.1 Concept of Instructional Design and related terms

- Instruction

- deals with teaching and learning activities.
- These activities should assist students to learn
- Teaching? Define these concepts in terms of:
- Learning? Different philosophical and psychological views

- Instructional design?
- the creation of instructional materials
- how students learn and what materials and methods will most effectively help individuals (Jann, 2024)
- It is the systematic process of creating effective and engaging learning experiences.
- is the process of developing effective and efficient instructional materials and activities based on learning and instructional theory

Instructional design…

- It focuses on the theory and process of creating effective learning experiences
- The goal is to make learning more efficient, effective, and appealing.
- What it Involves?
- It involves :
- analyzing learning needs,
- designing and developing instructional materials,
- implementing the instruction, and
- evaluating the results.

Educational Technology

while instructional design focuses on the theory and process of creating effective learning experiences, educational technology (edtech)

- is the practical application of technology to deliver and enhance those experiences.
- Instructional designers design the learning content, activities, and assessments,
- while educational technologists provide the digital tools, platforms, and methods for implementing the design.
- Both fields are interdisciplinary, drawing from fields like psychology, technology, and project management to bridge knowledge and skill gaps and make learning more efficient and engaging

- In conclusion, one is related to the theoretical aspect and the other on the practical application.

1.2. Assumptions of Instructional Design

- ID is an iterative process of developing learning experiences, and
- its underlying **assumptions** are largely rooted in various **learning theories** and the goal of creating effective, efficient, and engaging instruction.
- While there isn't a single definitive list of universal assumptions, core philosophical assumptions often align with the major psychological perspectives on learning:

Assumptions of ID…

1.Behaviorist Assumptions

- This perspective focuses on observable, measurable changes in performance, assuming:
- **Learning is a change in observable behavior:**
- Instruction should lead to demonstrable changes in either the form or frequency of a learner's actions.
- **The environment shapes behavior:**
- Learning is a passive response to environmental stimuli, and instruction is primarily about managing these stimuli (e.g., providing prompts, practice, and reinforcement/feedback).
- **Learning is systematic and measurable:**
- Objectives, stimuli, and outcomes can be precisely defined, and performance can be objectively assessed against these criteria.

Assumptions of ID…

2. Cognitivist Assumptions

- This view shifts focus to the internal mental processes, assuming:
- **Learning is an active mental process:** It involves acquiring, processing, storing, and retrieving information.
- **The learner is a rational processor of information:** Instruction should be designed to support cognitive processes such as attention, memory, and problem-solving (e.g., chunking information, using mnemonics).
- **Working memory capacity is limited:** New information should be presented in manageable pieces to limit the load on working memory.

Assumptions of ID…

3. Constructivist Assumptions

- This perspective emphasizes the learner's role in creating meaning, assuming:
- **Learning is an active construction of knowledge:** Learners build upon their previous insights, experiences, and existing knowledge to form new understanding.
- **Learning is personal and contextual:** The environment and real-world situations matter, as learners filter input and construct their own reality.
- **Instruction should be problem-centered and experiential:** It should encourage learners to develop knowledge in their own unique way, often through immersive or authentic tasks.

Assumptions of ID…

Reading Assignment on learning theories

Please read and have further understanding on the different learning theories and their implication for instructional design

1.3 Principles of Instructional Design

•There are four important principles that play key role. These principles are listed as follows:

1. Begin the planning process by clearly identifying the general goals and specific objectives students will be expected to attain;

2. Plan instructional activities that are intended to help students attain those objectives;

Principles of Instructional Design

3. Develop assessment instruments that measure attainment of those objectives;

4. Revise instruction in light of student performance on each objective and student attitudes towards instructional activities (Reiser & Dick, 1996).

- ID pays attention to instruction from the learner perspective than content perspective(traditional approach).
- Questions concerns with student learning include:

  1. What level of readiness do individual students have for accomplishing the objectives?

  2. What teaching and learning methods are most appropriate in terms of objectives and student characteristics?

3.What media or other resources are most suitable?

4. What support, beyond the teacher and the available resources, is needed for successful learning?

5. How is achievement of objectives determined?

6. What revisions are necessary if a tryout of the program does not match expectations?

1.4. Elements of Instructional Design

- In the ID process, there are four key elements:

1. whom to teach,
2. 2. what to teach,
3. 3. how to teach, and
4. 4. how to evaluate.

✓ In whom to teach process, knowing student personality is important because the target learners are students.

✓ Without students, instructional activities can't be implemented.

✓ To design effective instruction, teachers should get information about student characteristics.

Elements of Instructional Design …

- In what to teach, instructional goals and objectives are important.
- Teachers first must make decision on their goals and objectives in instructional design.
- Instructional goals and objectives give teacher information on what to teach during instructional activities.

Elements of Instructional Design…

- In how to teach, teacher gets information on how to deliver goals and objectives to students in the instruction.
- Instructional delivery methods indicate teacher what kinds of teaching and learning methods will be used.
- In how to evaluate, assessment tools are playing key role because teacher can get information on whether students accomplished the goals and objectives or not with the tools.

Elements of Instructional Design…

- During the educational measurement and evaluation process, assessing tools such as multiple choice, short-answer items, true-false items, matching items, essay questions, problem solving questions and others must be used to determine student learning activities in the instruction by teacher.
- These assessing tools should have reliability and validity characteristics to determine learning outcomes.

1.5.Models of Instructional Design

- ID models are frameworks that provide a systematic approach to planning, developing, and delivering learning experiences.
- They help instructional designers ensure that their educational products are effective, efficient, and engaging.
- Some of the most popular and influential models:
  - **ADDIE**
  - **Iterative Models (SAM)**
  - **Backward Design (or Understanding by Design - UbD)**
  - ARCS Model of Motivational Design

ADDIE Model…

- The **ADDIE** model is the foundational and most widely recognized model.
- It's a systematic, iterative process consisting of five phases.
- This model is the most commonly referenced framework and
- is an excellent starting point for understanding the instructional design process
- What are the key activities in each of the phases?

The explanations and major activities of each phase are summarized below

ADDIE Model…

Phase	Description	Key Activities
Analysis	Clarify the instructional problem, goals, audience (learners' needs and existing knowledge), and constraints.	Needs assessment, learner analysis, context analysis.
Design	Outline the instructional strategy based on the analysis results.	Write learning objectives, develop assessment instruments, select media/technology, create a content outline or blueprint.

ADDIE Model…

Development	Create and assemble the content assets and instructional materials based on the design phase. Export to Sheets	Write content, produce graphics/videos, build the course (e.g., in a Learning Management System), and conduct a pilot test.
Implementation	Deliver the instruction to the target audience.	Training the instructors (if applicable), delivering the course, and managing the learning process.
Evaluation	Assess the effectiveness and efficiency of the instruction both during (formative) and after (summative) implementation.	Gather feedback, measure learning outcomes, and revise the course based on results.

ADDIE Model…

- **ADDIE** is a traditional, structured framework that ensures a thorough foundation of analysis and design before building, aiming to "get it right the first time."

Iterative Models (SAM)

- Unlike the traditional linear view of ADDIE, iterative models emphasize rapid prototyping, constant feedback, and adjustments
- **SAM (Successive Approximation Model)**
- A more agile approach that focuses on shorter, repeated cycles of **Preparation**, **Iterative Design**, and **Iterative Development**.
- It encourages designers to create a small working prototype quickly, test it, gather feedback, and continuously refine it.

SAM model…

- **SAM** (developed by Michael Allen to address ADDIE's perceived shortcomings) is a more modern, agile approach that advocates for rapid prototyping and continuous refinement, embracing the idea of "ready, fire, aim" (prototyping quickly and adjusting as you go).

Backward Design (or Understanding by Design - UbD)

- This model flips the traditional design sequence.
- Has three stages :

1.Identify Desired Results: Determine the long-term learning goals.

2.Determine Acceptable Evidence: Design assessments that demonstrate mastery of the goals.

3.Plan Learning Experiences and Instruction: Design lessons and activities to prepare students for the assessments.

ARCS Model of Motivational Design

- Developed by John Keller, this model focuses on motivating learners by addressing four key elements:
- Attention (Capture interest)
- Relevance (Connect to needs/goals)
- Confidence (Help students believe they can succeed)
- Satisfaction (Provide positive reinforcement and reward)