

UNIT 9, WEEK 45-47

LOGIC, SYLLABUS REF: 3.1-3.4

Aim:

To introduce the basic concepts of logic.

Objective:

CONCEPTS: (CHAPTER 8)

- Propositions
- Negation
- Equivalence
- Conjunction
- Disjunction
- Exclusive disjunction
- Implication
- Converse.
- Inverse
- Contrapositive.
- Understand what *compound propositions* are.
- Understand what a *truth table* is.
- Understand that when compound propositions have the same T/F column they are *logically equivalent*.
- Tautology.
- Logical contradiction.

PROCEDURES:

- State a proposition as true or false.
- Know how to use the symbol for a proposition, for example p :
- Know how to use the symbol of the negation, \neg .
- Translate between verbal statement and symbolic form for negations.

- Use the symbol for the compound proposition conjunction, \wedge .
- Translate between verbal statement and symbolic form for conjunction.

- Use the symbol for the compound proposition disjunction, \vee .
- Translate between verbal statement and symbolic form for disjunction.

- Use the symbol for the compound proposition exclusive disjunction, $\underline{\vee}$.
- Translate between verbal statement and symbolic form for exclusive disjunction.

- Combine the symbols for propositions, negations and the different compound propositions.
- Translate between verbal statement and symbolic form for different compound propositions.

- Use the symbol for the compound proposition implication, \Rightarrow .
- Translate between verbal statement and symbolic form for implications.
- Use the symbol for the compound proposition inverse.
- Translate between verbal statement and symbolic form for inverse.
- Use the symbol for the compound proposition contrapositive.

Translate between verbal statement and symbolic form for contrapositive.

Venn diagrams and the compound propositions conjunction, disjunction and exclusive disjunction.

TRUTH TABLES:

Construct truth tables for up to three propositions.

Use truth tables to state if compound propositions are logically equivalent.

Use truth tables to state if a compound statement represents a tautology.

Use truth tables to state if compound statement represents a logical contradiction.

Testing the validity of simple arguments through truth tables.

TOK links

Logic and fallacies.

ATL

Videos on procedures and concepts.

Work on and discuss examination questions.

Assessment

Formative: Homework quizzes and exit tags.

Summative: Included in the test examination, December 9.