Assessment Date:  ____Spring 2013________________________

Faculty Name(s): ____David Topham______________________________________________________

1. Course Name and Number:

Discrete Mathematics for Computers
CS113

2. All Course SLOs from the Course Outline of Record:

Student Learning Outcomes

The student will:
  1. list, describe, and apply the mathematical tools used to examine the theoretical foundations of computer science.
  2. construct valid mathematical arguments using logical connectives and quantifiers and verify the correctness of a mathematical arguments using symbolic logic and truth tables.
  3. use discrete math and logic to specify computer applications and reason about programs in a systematic way.

3. Specific Course SLO(s) assessed as part of this project:

2. construct valid mathematical arguments using logical connectives and quantifiers and verify the correctness of a mathematical arguments using symbolic logic and truth tables.

4. Assessment strategy or tool used in the assessment. (Describe below, and if applicable copy/paste any additional related documents at end of this form (i.e. Rubric, score sheet, test questions, essay assignment, etc.):

One question (#27) was put into the final exam to assess the student’s ability to construct and verify a valid mathematical argument using the logic techniques taught and hopefully learned this semester.
5. **Specific aspects of the assessment tool which link up to specific Course SLOs being assessed** (i.e. Which specific test questions measured which Course SLOs? Note: May describe with #4 above.):

27. Prove \( P \lor Q, P \Rightarrow R, Q \Rightarrow R \models R \) using the deduction theorem, hypothetical syllogism, the law of cases, and the fact that \( P \lor Q \models (\neg P \Rightarrow Q) \). Indicate in these rules are being applied and to what lines.

   1. \( P \lor Q \) | Premise
   2. \( \neg P \Rightarrow Q \)
   3. \( Q \Rightarrow R \)
   4. \( \neg P \Rightarrow R \)
   5. \( P \Rightarrow R \)
   6. \( R \)

6. **Results and analysis of the data.** (Explain below and if applicable copy/paste any related documents, i.e. spreadsheets with data at the end of this document.):

   I placed the responses into 3 categories: Perfect, Acceptable, and Not good. All the students made an attempt to answer the question, but unless they got it completely correct, I didn't consider it perfect. Acceptable indicates that they understood parts of the proof, but either had an incomplete answer or did not recognize the logical arguments being made. Results: Perfect (43%), Acceptable (31%), Not good (26%).

7. **Describe any faculty dialogue that occurred as part of the assessment process** (i.e. Were results shared at a department meeting? Was there discussion about changing any SLOs? Etc.):

   Informal discussions with students after the final indicated that some found the question confusing because they felt they needed more practice problems of this type in advance to clarify the terminology. e.g. What is the difference between hypothetical and disjunctive syllogism?

8. **Next steps** (i.e. any planned revisions to curriculum or teaching strategies to promote student success, future assessment plans, etc.):
I plan to add additional exercises to the homework problems to practice distinguishing between the various proof rules needed to understand this type of problem and to have the student develop more facility in recalling the characteristics of each one.

9. Results of implemented changes, if available at this time:

N/A

Please save your finished document in the following format:

`yyyysemester-sloa-courseid.doc`
`example: 2012fall-sloa-engl101c.doc`