Syllabus

I. **Course Title:**  CSC 301 - Foundations of Computer Science I - Credit Hrs: 3

II. **Instructor's Name:**  R. A. Pilgrim  
Office Location:  BB652  
Phone Number:  (270) 809-6220  
**E-Mail Address:**  bob.pilgrim@murraystate.edu

**Web Page URL:**  http://csclab.murraystate.edu/bob.pilgrim/  
**Office Hours:**  See Web page

III. **Catalog Description:**  Course introduces the discrete mathematical foundations of computer science, providing the appropriate theoretical background for advanced courses. Topics include: functions, relations, sets, logic, proof techniques, combinatorics, digital logic, elementary number theory. Prerequisites: CSC 101 and mathematical preparation sufficient to take calculus.

IV. **Purpose:**  The purpose of this course is to introduce the mathematical foundations of computer science.

V. **Course Objectives (Learning Objectives):**  Upon completion of this course the student should,

- understand the definition of functions and relations
- be able to apply and interpret logical statements
- be able to apply the common proof techniques
- understand the fundamentals of combinatorics
- be familiar with digital logic
- understand graphs and trees
- be able to express the concepts of NP-Completeness
- understand the levels of computational power

VI. **Content Outline:**

- Logic and Boolean Algebra
- Predicates and Quantifiers
- Rules of Inference
- Sets & Functions
- Sequences and Summations
- Graphs and Graph Models
- Trees
- Boolean Algebra
- Logic Gates
- Minimization of Circuits
- Modeling Computation
- Languages and Grammars
- Finite-State Machines
- Language Recognition
- Turing Machines
VII. Instructional Activities: Instructional activities include, lectures, instructor-directed laboratory exercises, homework, and quizzes. In addition, lecture outlines, answers to selected homework problems, sample programs and other course related information will be available on the Internet.

VIII. Field and clinical Experiences: none

IX. Resources: Handouts, Internet Data Sources, Computer Laboratory and Supporting Software.

X. Grading Procedures: Letter grades will be applied on a 10-point scale. Some adjustment may be possible depending on the difficulty of the assignments based on class performance.

Homework ....................... 30%
Tests ........................ 50%
Final Exam..................... 20%

XI. Attendance Policy:

The class role will be taken periodically. Students are expected to attend class regularly. Frequent absences could affect your homework/class participation grade. Late homework will not be graded for credit. Missed tests will be made up during the final exam.


XIII. Prerequisites: CSC101 and math preparation sufficient to take calculus.

XIV. Academic Honesty Policy:

Refer to the appropriate section of the Undergraduate Bulletin for an explanation of the Murray State University Academic Honesty Policy. Cheating, plagiarism (submitting another person's work as your own), or doing work for another person which will receive academic credit are all unacceptable forms of conduct and constitute academic dishonesty. This includes the use of unauthorized books, notebooks or other sources in order to secure or give help during an examination; the unauthorized copying of examinations, assignments, reports, computer files or term papers; or the presentation of unacknowledged material as if it were your own work. Anyone caught cheating will receive an E for the course, the incident will be reported to the Dean's Office and the incident will be recorded in the student's permanent record. Repeated instances of academic dishonesty can result in additional penalties by the College and the University including expulsion.

XV. Reasonable Accommodations: If you need have a disability or you need special consideration for any reason, let your instructor know as soon as possible. We will make any reasonable accommodations to address your needs.

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