GOALS: of Programming Principles and Practice; Quality

WHY: The goal of these notes is to introduce the basic concepts of programming and a way of thinking about processes, planning, problem solving, and programming.

WHEN: These notes are intended as a first course in computing, at an early level. They should be suitable for students majoring in Computing Science, as well as those majoring in other fields.

HOW: The approach taken here is a general one, not restricted to any particular computer, language, system, or application area. There are a great many examples, mainly chosen from everyday life, involving paychecks, calendars, games, statistics, business, cooking. The treatment is self contained. The main goal is not training, but education.

WHO: These notes are intended for beginners. No previous background in computing is assumed (and in fact may be a disadvantage, for bad habits are hard to break). Extensive mathematical background is not a prerequisite, for most of the required mathematics is developed as necessary. A significant prerequisite is time; it takes time to master the concepts.

WHAT: The goal here is to develop and improve a high level structured view of programming. This higher level view is sometimes called the "systems" view, the view from the top. It proceeds first from the "big picture", then through intermediate refinements, and ultimately deals with the details. The details cannot be avoided; but they must be put into perspective.
NON-GOALS

It may be significant to realize what goals were not attempted here, although some of the non-goals may have been achieved anyhow.

It is not intended mainly as training in a language, although a language, Java (and pseudo Code, Jr), is introduced at some depth.

It is not emphasizing training in a skill, although some skills must be acquired in the learning process.

It is not merely a collection of techniques or tricks, although some techniques are encountered within the general unity of the approach.

It is not a picture-book survey of computers, although considerable graphics are involved.

It is not a glorified glossary of "buzz words," fashionable features, hype and hot topics, although some vocabulary is introduced to describe the concepts.

It is not a study of the hardware aspects of computers, although some structure and architecture is briefly covered, when needed.

It is not a "how-to" of various applications of computers, although word processing, spreadsheets, databases, etc may be involved in examples.

It is not overly concerned with societal aspects of computing, although privacy, security, ethics and other societal concerns are discussed in context.

It is not possible for one course to deal with everything.

This course is intended to develop a view of planning, problem-solving and programming using computers at a high human level.