GIS 505: COMPUTER PROGRAMMING		
Unit 1	**Basics of Computers:** An introduction to computers, development of computers, Hardware and Software. Fundamentals of Computers – operating systems, input devices, output devices, storage devices-primary, secondary, central processing unit, computer languages, translators.	8 hrs
Unit 2	**Information Super Highway:** Introduction to Internet. Scope of Internet. Equipment required for an Internet Connection. Electronic Mail. Concepts of Information Storehouse. Surfing the Net. Browsing the WWW. Search Engines and their applications. Application of internet to Geoinformatics. Introduction to networks, Local area network devices, topologies, protocols, wide area networks, servers, hubs, nodes, modems, internet.	8 hrs
Unit 3	**HTML (Web design):** Basic & advanced HTML, Types of tags, Document creations, Linking, Creating Link List, handling images, tables and, style sheets. Types of tags, Creating hyper text links. Formatting the text (example). Creating Image Links.	8 hrs
Unit 4	**Outlines of Python:** Introduction. Creating/Opening/Closing a net CDF file, Dimensions, Variables, attributes in a net CDF file. Writing and retrieving data from a net CDF file. Numpy, Scipy, Matplotlib modules/packages.	8 hrs
Unit 5	**Handling of Character strings:** Declaring and initializing string variables. C++ Programming: C++ Tokens, Expressions and Control Structure. Object oriented concepts: classes and objects, Functions: Defining Member functions Inheritance, Polymorphism, operator overloading, Constructors and Destructors, Control structures statements.	8 hrs
Unit 6	**JAVA:** Fundamentals of Objects- Oriented Programming. Overview of Java, Data types, Variables, Constants, Operators and Expressions Decision Making: Branching and looping statements, Classes, Objects and methods, multiple Inheritance, packages, multi-threaded programming, managing errors and exceptions, applets.	8 hrs

References

1. Beekman, G. 1999. Computer Confluence: Exploring Tomorrow's Technology. Addison-Wesley, Reading, MA. (3rd Ed).

2. Willis H. Means 19087A content analysis of six introduction to computer science textbooks ACM New York, NY, USA, 403 - 413

3. Beekman, G. George Beckman, 2000. Tech Nation. Online. Internet. [March 14]. Available WWW:http://www.computerconfluence.com/about/tech.htm

4. Cheryl Schmidt Complete 1990. Computer Repair Textbook, Scott Jones, 22-408.

5. Dix, A., Finlay, J., Abowd, G., and Beale, R. 1999. Human-Computer Interaction. Prentice-5. Hall, Herts. UK. 67-089.

6. Goldberg, M. W. Web CT and First Year Computer Science June, 1997: Student Reaction to and Use of a Web-Based Resource in First Year Computer Science, in Proceedings of the ACM's ITiCSE Conference on Integrating Technology into Computer Science Education. ACM Press. 127-129.

7. E. Balaguruswamy, Programming in C++

8. E. Balaguruswamy, Programming in Java.