

**COT 6930 Multimedia Programming**  
Dept. of Computer Science and Engineering  
Florida Atlantic University, Boca Raton, FL

**Fall 2006**

**Goals:** This course is intended to provide a background and experience in the area high performance software development.

**Course Description:** This is a graduate level course focusing on software optimization in general and efficient multimedia software and systems development in particular. The course will use a video coding algorithm and analyze complexity and architecture dependencies. The course will introduce efficient programming techniques including software optimization, MMX programming, DirectShow architecture, and Intel performance tools (Compiler, IPP, VTune). Students will be able to develop multimedia applications such as media players by the end of the course. The course is expected to include hands-on development and will also have a few class room presentations by each student.

**Prerequisite:** COP 3530 Data Structures, C/C++ programming skills

**Text book:** The Software Optimization Cookbook: High Performance Recipes for IA 32 Platforms by Richard Gerber, Aart J. C. Bik, Kevin Smith, Xinmin Tian

**References:**

Software Optimization for High Performance Computing: Creating Faster Applications by Isom Crawford, Kevin Wadleigh

**Instructor:** Dr. Hari Kalva

**E-mail:** hari@cse.fau.edu

**Telephone:** (561) 297-0511

**Topics:**

1. Software optimization
2. Intel programming tools and SDKs
3. Video compression - MPEG-4 and H.264
4. Complexity estimation
5. Software optimization techniques
6. MMX programming
7. Microsoft DirectShow architecture
8. Wireless MMX

**Grading:**

About 5 assignments	50%
Term project	50%
No exam	

**Each student in the class will receive FREE licenses to the Intel C++ compiler, Intel IPP, and the Intel VTune Performance Analyzer (courtesy of Intel). These Intel tools are widely used in the industry for software development and will be used in all assignments and projects.**