科目名：メディア信号処理特論	開講学期：前期
（英文名：Multimedia Signal Processing）	単位数：2
担当教員：近藤和弘	開講形態：講義・演習

開講対象：　電子情報工学専攻

【到達目標】

To be able to explain recent multimedia signal processing standards and applications, and get a firm grasp on recent signal processing techniques.

To be able to use basic signal processing functions to practical applications, preferably to the students' thesis work.

【授業概要・計画】

This lecture will cover the basics, recent technology advances, as well as applications of multimedia signal processing including speech, music, still images and video. We will cover coding for communications and storage, synthesis, recognition and understanding, as well as international standards. This lecture will be conducted in English upon mutual agreement with the student(s).

Class schedule:

1. Orientation	2. Media and Data Streams
3. Audio Technology	4. Graphics and Images
5. Video Technology	6. Animation
7. Quantization	8. Predictive Coding

9. Frequency Domain Coding (Sub-band Coding)

10. Frequency Domain Coding (Transformation Coding)

11. Frequency Domain Speech and Audio Standards

12. JPEG Still Image Compression Standards

13. MPEG Video Compression Standards

14. MPEG Audio Compression Standards and MPEG System Standards

【成績評価の方法と基準】

Semi-weekly report scores, and daily presentations and discussions

【参考書】

R. Steinmetz and K. Nahrstedt, *Multimedia Fundamentals: Media Coding and Content Processing*, Upper Saddle River, NJ: Prentice Hall, 2002.

J. D. Gibson, T. Berger, T. Lookabaugh, D. Lindbergh, and R. L. Baker, *Digital Compression for Multimedia: Principles and Standards*, San Francisco, CA: Morgan Kaufmann Publishers, 1998.

【担当教員の専門分野】

Speech and Audio Signal Processing, Multimedia Signal Processing, Comm. Systems