课程详述
COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	数字图像处理 / Digital Image Processing
2.	授课院系 Originating Department	电子与电气工程系 Department of Electrical and Electronic Engineering
3.	课程编号 Course Code	EE326
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业核心课 Major Core Courses 专业选修课 Major Elective Courses
6.	授课学期 Semester	春季 Spring
7.	授课语言 Teaching Language	英文 English
8.	授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） Instructor(s), Affiliation& Contact （For team teaching, please list all instructors）	虞亚军，副教授，电子与电气工程系 Associate Professor YU Yajun, Department of Electrical & Electronic Engineering Email: yuyj@sustech.edu.cn Tel: 0755-88018557
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
10.	选课人数限额(可不填) Maximum Enrolment （Optional）	50

11.	授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other（Please specify）	总学时 Total
	学时数 Credit Hours	32		32		64

12.	先修课程、其它学习要求 **Pre-requisites or Other Academic Requirements**	EE205 信号与系统 Signals and Systems
13.	后续课程、其它学习规划 **Courses for which this course is a pre-requisite**	
14.	其它要求修读本课程的学系 **Cross-listing Dept.**	生物医学工程系 / Dept. of Biomedical Engineering

<h1 align="center">教学大纲及教学日历 SYLLABUS</h1>

15. 教学目标 **Course Objectives**

本课程的教学目标是介绍图像处理的总体领域，理解图像处理在空域和频域的基本算法和实现方式，图像增强，图像的恢复，彩色图像处理，以及图像分割。

This course develops an overview of the field of image processing, introduces the fundamental spatial domain and frequency domain image processing techniques and their implements, image enhancement, image restoration, processing of color images, and image segmentation.

16. 预达学习成果 **Learning Outcomes**

通过学习这门课程，学生能够
1. 了解图像处理的总体领域，
2. 理解图像处理在空域和时域的基本处理方法和技术
3. 用计算机语言实现图像处理算法
4. 积累经验并且晕晕图像处理算法解决实际问题
5. 查阅最新图像处理文献，对图像处理领域做进一步的研究。

After completing this course, students are able to
1. Have an overview of the field of image processing;
2. Understand the fundamental spatial domain and frequency domain image processing techniques;
3. Implement image processing algorithms using computer languages;
4. Gain experience and apply the image processing algorithms to solve real problems;
5. Read the current image processing research literature and conduct further researches in the area of image processing.

17. 课程内容及教学日历 （如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）
Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

1. Introduction of digital image processing, including the principle of imaging, imaging sensing, acquisition, sampling and quantization. 2hr

2. Digital image fundamentals: Basic relationship between pixels, and mathematical tools used in digital image processing. 3hr

3. Intensity Transformation and spatial filtering. 6hr

4. Filtering in the frequency domain. 6hr

5. Image restoration and reconstruction. 5hr

6. Color image processing. 3hr

7. Image segmentation. 7hr

18. 教材及其它参考资料 **Textbook and Supplementary Readings**

Digital Image Processing (3rd Edition) by Rafael C. Gonzalez and Richard E. Woods, Publishing house of Electronics Industry

课程评估 ASSESSMENT

19.

评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects		30		
平时作业 Assignments		30		
期中考试 Mid-Term Test				
期末考试 Final Exam		30		
期末报告 Final Presentation		10		

其它（可根据需要改写以上评估方式） **Others (The above may be modified as necessary)**		4		

20.   记分方式 **GRADING SYSTEM**

☑ A. 十三级等级制 **Letter Grading**
☐ B. 二级记分制（通过/不通过） **Pass/Fail Grading**

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课程审批 **REVIEW AND APPROVAL**

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21.   本课程设置已经过以下责任人/委员会审议通过
        This Course has been approved by the following person or committee of authority