

## 《楼宇自动化》课程教学大纲

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| 课程名称：楼宇自动化                                                                                                                                                                                             |  | 课程类别（必修/选修）： 选修                                                                                                                                                                                                                                                                                                                                                                      |  |
| 课程英文名称：Building Automation                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 总学时/周学时/学分：28/2/1.5                                                                                                                                                                                    |  | 其中实验（实训、讨论等）学时：4                                                                                                                                                                                                                                                                                                                                                                     |  |
| 先修课程：锅炉原理、汽轮机原理、热工测量技术                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 授课时间：1-14 周 星期二 1-2/3-4 节                                                                                                                                                                              |  | 授课地点：7B206                                                                                                                                                                                                                                                                                                                                                                           |  |
| 授课对象：2016 级能源与动力工程专业 1、2、3、4 班                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 开课院系：化学工程与能源技术学院                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 任课教师姓名/职称：肖汉敏/讲师                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 联系电话：13763268236                                                                                                                                                                                       |  | Email: xiaohm@dgut.edu.cn                                                                                                                                                                                                                                                                                                                                                            |  |
| 答疑时间、地点与方式：1.每次上课的课前、课间和课后，采用一对一的问答方式；2.充分利用现代网络手段（QQ、微信），进行远程答疑；3.课外在 12L401 答疑。                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 课程考核方式：开卷（    ）        闭卷（√）    课程论文（    ）    其它（    ）                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 使用教材：《建筑智能化系统》，章云，清华大学出版社，2017 年 4 月第二版                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 教学参考资料：《楼宇自动化技术与应用》，陈虹主编，北京：机械工业出版社，2003                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 课程简介：<br><div>楼宇自动化又称智能建筑，它是信息时代的产物，是以计算机、自动化和网络为核心的信息技术向建筑行业的应用和渗透。本课程介绍智能建筑的概念，楼宇设备自动化知识，冷热源与暖通空调系统的基础知识及监控，给排水系统的基础知识及监控，其他建筑设备的自动化，建筑设备自动化的系统集成，智能建筑各个子系统的基本原理、主要技术、设计方法和工程实施，以及智能建筑系统集成等内容。</div> |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 课程教学目标<br><div>1.了解楼宇自动化系统的发展趋势和楼宇自动化系统的主流产品。<br/>2.掌握楼宇自动化系统的基本工作原理、系统的初步设计方法、工程实施步骤、系统集成技术以及智能大厦管理技术。<br/>3.掌握 BA 系统的系统组成以及典型系统的配置设计，提高实际应用能力，为在以后的工作过程中，打下一个良好的基础。</div>                            |  | 本课程与学生核心能力培养之间的关联<br><div>√核心能力 1. 掌握及应用数学、基础自然科学以及能源与动力工程专业知识的能力；<br/>√核心能力 2.具有设计与执行实验，并通过分析与解释数据，研究能源动力系统问题的能力；<br/>√核心能力 3.具备能源与动力工程领域所需技能、技术及使用现代工具的能力；<br/>√核心能力 4.能源动力系统的开发、运行及控制的设计能力；<br/>□核心能力 5.项目管理、有效沟通协调与团队合作能力；<br/>√核心能力 6.发掘、分析与解决复杂工程问题的能力，并了解工程技术及解决方案对环境、社会及全球的影响；<br/>√核心能力 7.认识科技发展现状与趋势，培养自主学习的习惯和持续学习的能力；<br/>□核心能力 8.理解并遵守职业道德和规范、认知专业伦理，践行社会主义核心价值观。</div> |  |
| 理论教学进程表                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                      |  |

| 周次      | 教学主题           | 教学时长 | 教学的重点与难点                                                             | 教学方式           | 作业安排           |
|---------|----------------|------|----------------------------------------------------------------------|----------------|----------------|
| 1-2     | 基本概念           | 4    | (1)智能建筑的组成<br>(2)熟悉智能建筑的支持技术<br>(3)掌握智能建筑的功能及特点<br>(4)了解智能建筑的现状及发展趋势 | 讲授             | 1、4、5、9        |
| 3       | 智能建筑信息传输网络基础原理 | 2    | (1) 智能建筑网络功能及传输对象<br>(2) 传输介质<br>(3) 通信网络技术                          | 讲授             | 1、2、3、4        |
| 4       | 智能建筑内的计算机网络    | 2    | (1) 智能建筑内的计算机局域网技术<br>(2) 局域网扩展与网络互联<br>(3) 宽带接入技术                   | 讲授             | 2、3、4          |
| 5       | 智能化建筑的综合布线技术   | 2    | (1) 综合布线的组成<br>(2) 与相关设备的连接<br>(3) 系统设计                              | 讲授             | 2、4、6、7        |
| 6-7     | 建筑基本设备及其控制特性   | 4    | (1) 供配电系统<br>(2) 照明系统<br>(3) 空调与冷热源系统<br>(4) 给排水系统                   | 讲授             | 1、3、8          |
| 8-9     | 建筑设备自动化技术      | 4    | (1) BAS<br>(2) 集散控制系统<br>(3) BAS 设计                                  | 讲授             | 1、4、5、7        |
| 10      | 消防及联动控制技术      | 2    | (1) 火灾探测器<br>(2) 火灾报警控制器及火灾报警系统<br>(3) 自动灭火系统                        | 讲授             | 1、2            |
| 11      | 智能建筑系统集成技术     | 2    | (1) 智能建筑系统集成基本概念<br>(2) 智能建筑集成管理系统<br>(3) 基于物联网的应用系统集成技术             | 讲授             | 2、3            |
| 12      | 建筑智能化项目管理方法    | 2    | (1) 建筑智能化项目实施流程<br>(2) 建筑智能化项目的招标、投标<br>(3) 项目实施                     | 讲授             | 1、2            |
| 合计:     |                | 24   |                                                                      |                |                |
| 实践教学进程表 |                |      |                                                                      |                |                |
| 周次      | 实验项目名称         | 学时   | 重点与难点                                                                | 项目类型（验证/综合/设计） | 教学方式           |
| 13      | 布防和撤防联动控制实验    | 2    | 1) 接线<br>2) 编程                                                       | 综合             | 实验<br>具体时间另行安排 |

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| 14                | 多种模式下的灯光场景控制实验 | 2                                                                                 | 1) 接线<br>2) 编程 | 综合 | 实验<br>具体时间另行安排 |
| 合计:               |                | 4                                                                                 |                |    |                |
| 成绩评定方法及标准         |                |                                                                                   |                |    |                |
| 考核形式              |                | 评价标准                                                                              |                |    | 权重             |
| 考勤                |                | 缺席 1 次扣平时分 5 分, 缺席 3 次以上不及格处理, 百分制。                                               |                |    | 10%            |
| 实验                |                | 实验表现和实验报告, 百分制。                                                                   |                |    | 10%            |
| 课后作业              |                | 作业的评分标准为 (A、B、C、D) 四个等级, 其中 A 代表 100 分, B 代表 85 分, C 代表 60 分, D 代表无成绩, 取每次成绩的平均分。 |                |    | 10%            |
| 期末考试成绩            |                | 按照期末考试成绩进行评价, 百分制。                                                                |                |    | 70%            |
| 大纲编写时间: 2018/9/12 |                |                                                                                   |                |    |                |
| 系(部) 审查意见:        |                |                                                                                   |                |    |                |
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- 注: 1、课程教学目标: 请精炼概括 3-5 条目标, 并注明每条目标所要求的学习目标层次(理解、运用、分析、综合和评价)。本课程教学目标须与授课对象的专业培养目标有一定的对应关系
- 2、学生核心能力即毕业要求或培养要求, 请任课教师从授课对象人才培养方案中对应部分复制 (<http://jwc.dgut.edu.cn/>)
- 3、教学方式可选: 课堂讲授/小组讨论/实验/实训
- 4、若课程无理论教学环节或无实践教学环节, 可将相应的教学进度表删掉。