

电气工程及其自动化

一、培养目标

培养德、智、体、美全面发展，掌握电气工程领域的基本理论、基本知识、基本方法及基本技能，能够从事电气工程及相关领域的规划、设计与建设、系统运行与控制、电气装备制造、试验分析、电能转换与高效应用、智能电网与新能源的开发利用等工作的复合型工程技术人才。

二、基本规格要求

1. 具有较好的人文社会科学素养、正确的人生观和价值观、诚实守信的工程职业道德、较强的社会责任感。

2. 具有一定的组织管理能力、良好的人际交往能力、学术交流能力及团队合作能力；具有国际视野和跨文化的交流、竞争与合作能力。

3. 熟悉国家宏观经济发展的能源和电气类相关产业政策，了解相关行业法律法规，能正确认识和评价重大工程实施对社会、健康、安全、法律以及文化的影响。

4. 具有从事工程技术所需的数学、自然科学和工程科学知识，具有较好的工程基础、管理科学基础和外语综合能力，并能够用于解决复杂工程问题。

5. 系统掌握本学科领域必需的基础理论知识，包括电路理论、电子技术、计算机软硬件、电机学、电力电子学、电力系统分析、高电压技术等，具有复杂系统的工程实践经验，了解本学科领域前沿技术的研究现状和发展趋势。

6. 获得较好工程实践训练，具有熟练的计算机应用能力，具有综合运用电气工程学科理论和技术手段分析并解决各类复杂工程问题的基本能力。

7. 具有创新意识和追求创新的态度；具有综合运用本学科领域的理论和技术手段对本专业新产品、新工艺、新设备进行设计和研发的能力，设计过程中能够综合考虑经济、环境、法律、安全、健康、伦理等制约因素。

8. 掌握本专业和了解其他学科交叉的新理论、新方法和新技术，具备本专业深入研究学习的能力。

9. 掌握检索和获取信息的基本方法，具备终身学习、适应社会发展的能力。

10. 至少掌握下述专业方向之一的基本理论与方法：

方向 1：电力系统及其自动化。

方向 2：电机电器及其控制。

方向 3：电力电子技术。

方向 4：高电压与绝缘技术。

三、专业培养特色

以强电为主，强电与弱电融合，软件与硬件兼备，装置与系统并重，强化工程应用。

四、学制、毕业基本要求及学位授予

1. 本科基本学制 4 年，弹性学习年限 3—6 年，按照学分管理制度管理。

2. 本专业学生毕业最低学分数为 170 学分，其中各类别课程及环节要求学分数如下表：

| 课程类别 | 通识必修 | 学门核心 | 学类核心 | 专业核心 | 专业选修 | 通识选修 | 集中实践 | 合计 |
|------|------|------|------|------|------|------|------|-----|
| 学分数 | 27 | 24 | 43 | 11 | 25 | 8 | 32 | 170 |

3. 学生修满培养方案规定的必修课、选修课及有关环节,达到规定的最低毕业学分数,并修完规定必修但不记学分的所有课程和环节,德、智、体合格,即可毕业。满足学位授予相关文件要求的,授予工学学士学位。

五、课程设置及学分分布

(一) 通识教育课程〔必修 27+ (6) 学分+选修 8 学分〕

通识教育课程包括必修和选修两部分。通识选修课程按《湖南大学通识选修(文化素质教育)课程方案》实施,其中管理类课程必修一门。通识必修课程如下:

| 编码 | 课程名称 | 学分 | 备注 |
|--------------|----------------------|------------|----|
| GE01101 | 毛泽东思想和中国特色社会主义理论体系概论 | 3+ (3) | |
| GE01039 | 思想道德修养与法律基础 | 1.5+ (1.5) | |
| GE01100 | 形势与政策 | 0.5+ (1.5) | |
| GE01102 | 中国近现代史纲要 | 2 | |
| GE01103 | 马克思主义基本原理(上) | 2 | |
| GE01104 | 马克思主义基本原理(下) | 2 | |
| GE01012(-15) | 大学英语 | 8 | |
| GE01088 | 计算机基本能力测试 | 0.5 | |
| GE01093 | 计算机导论与程序设计 | 2.5 | |
| GE01107(-13) | 心理素质与生涯发展 | 1 | |
| GE01089(-92) | 体育 | 4 | |

(二) 学门核心(24 学分)

| 编码 | 课程名称 | 学分 | 备注 |
|-------------|------------|----|----|
| GE03025 | 高等数学 A(1) | 5 | 必修 |
| GE03026 | 高等数学 A(2) | 5 | 必修 |
| GE03003 | 线性代数 A | 3 | 必修 |
| GE03004 | 概率论与数理统计 A | 3 | 必修 |
| GE03005 | 普通物理 A(1) | 3 | 必修 |
| GE03006 | 普通物理 A(2) | 3 | 必修 |
| GE03007(08) | 普通物理实验 A | 2 | 必修 |

(三) 学类核心(43 学分)

| 编码 | 课程名称 | 学分 | 备注 |
|---------|----------|----|----|
| EC04011 | 电路 | 4 | 必修 |
| EC04012 | 电路实验 | 1 | 必修 |
| EC04013 | 电磁场与波 | 3 | 必修 |
| EC04014 | 模拟电子技术基础 | 4 | 必修 |
| EC04015 | 模拟电子技术实验 | 1 | 必修 |

续表

| 编码 | 课程名称 | 学分 | 备注 |
|---------|------------|----|----|
| EC04016 | 数字电子技术基础 | 4 | 必修 |
| EC04017 | 数字电子技术实验 | 1 | 必修 |
| EC04018 | 微机原理及其应用 | 4 | 必修 |
| EC04019 | 微机原理及其应用实验 | 1 | 必修 |
| EC04020 | 积分变换 | 2 | 必修 |
| EC04021 | 复变函数 | 2 | 必修 |
| EC04022 | 工程图学 | 3 | 必修 |
| EC04023 | 自动控制原理 | 4 | 必修 |
| EC04024 | 信号与系统 | 3 | 必修 |
| EC04025 | 传感与检测技术 | 3 | 必修 |
| EC05003 | 电力电子技术基础 | 3 | 必修 |

(四) 专业核心 (11 学分)

| 编码 | 课程名称 | 学分 | 备注 |
|---------|---------|----|----|
| EC05017 | 电机学 (上) | 3 | 必修 |
| EC05018 | 电机学 (下) | 4 | 必修 |
| EC05019 | 电力系统基础 | 4 | 必修 |

(五) 专业选修课 (25 学分)

| 编码 | 课程名称 | 学分 | 备注 |
|---------|-----------------|-----|----|
| EC06085 | 电力系统分析 | 2 | |
| EC06086 | 发电厂电气主系统 | 2.5 | |
| EC06087 | 电力系统继电保护原理 | 2.5 | |
| EC06088 | 高电压技术 | 2 | |
| EC06089 | 电力系统自动控制技术 | 2 | |
| EC06020 | 配电网络 | 2 | |
| EC06008 | 电力系统微机保护 | 2 | |
| EC06061 | 电力系统可靠性 | 2 | |
| EC06091 | 电力系统优化基础 | 2 | |
| EC06055 | 智能电网概论 | 2 | |
| EC06007 | 电力系统规划 | 2 | |
| EC06092 | 电机控制技术 | 2.5 | |
| EC06093 | 电机设计 | 2.5 | |
| EC06094 | 电力电子装置设计 | 2 | |
| EC06095 | 电力伺服技术 | 2 | |
| EC06096 | 电气测量与电机试验技术 | 2 | |
| EC07008 | 电器学 | 2 | |
| EC06097 | 电气装备电磁设计基础 | 2 | |
| EC06098 | 电气装备机械设计基础 | 2 | |
| EC06045 | Matlab 与电机系统仿真 | 2 | |
| EC06099 | 微特电机技术 | 2 | |
| EC06100 | 电力电子与电机系统可靠性 | 2 | |
| EC06101 | 电力系统过电压 | 2 | |
| EC06102 | 高压电力设备在线监测及故障诊断 | 2 | |
| EC06103 | 特高压输电技术 | 2 | |
| EC06013 | 发电厂动力部分 | 2 | |
| EC06006 | 电力技术经济 | 2 | |

续表

| 编码 | 课程名称 | 学分 | 备注 |
|---------|---------------|----|----|
| EC06041 | 电力市场 | 2 | |
| EC06002 | 电气工程 CAD 技术 | 2 | |
| EC06036 | 电气工程新技术导论 | 2 | |
| EC06042 | 新能源发电技术 | 2 | |
| EC06105 | 建筑电气 | 2 | |
| EC06104 | 电气工程专业英语 | 2 | |
| EI05011 | 嵌入式系统及其应用 | 2 | |
| IA07004 | 科学与工程计算方法及应用 | 3 | |
| EC06046 | 软件技术基础 | 3 | |
| EC06090 | 电能质量检测与控制 | 2 | |
| EC06078 | MEMS 基础 | 2 | |
| IA07001 | 测控系统工程设计 | 2 | |
| EC06079 | 光电测量技术 | 2 | |
| EC06080 | MATLAB 程序设计 | 2 | |
| IA06010 | 精密测量技术 | 2 | |
| EC06081 | 无线传感技术 | 2 | |
| EC06082 | 虚拟仪器 | 2 | |
| EC06083 | 智能仪器 | 2 | |
| EC06084 | 过程控制与自动化仪表 B | 2 | |
| EI07005 | ASIC 设计初步 | 2 | |
| EI06019 | DSP 技术及其应用 | 2 | |
| EC06001 | EDA 技术基础 | 2 | |
| EI06021 | 电磁兼容技术 | 2 | |
| EI05017 | 光纤通信 | 2 | |
| EI07006 | 计算机网络 | 2 | |
| EC06067 | 认知无线电技术 | 2 | |
| EI06025 | 数字电视技术 | 2 | |
| EC06106 | 通信原理 B | 2 | |
| IA06012 | 数字信号处理 B | 2 | |
| EI06028 | 微波与天线 | 2 | |
| EI06029 | 卫星通信 | 2 | |
| EI06031 | 无线通信技术 | 2 | |
| EI05013 | 通信系统仿真 | 2 | |
| EI06034 | 移动通信 | 2 | |
| EC06065 | 语音信号处理 | 2 | |
| EC06066 | 射频电子电路 | 2 | |
| EI07003 | 信息论与编码技术 | 2 | |
| EC06068 | 超高频快速电路的信号完整性 | 2 | |
| EC06069 | 集成电路设计软件模拟与仿真 | 2 | |
| EC06033 | 智能控制 | 2 | |
| EC06070 | 模式识别 | 2 | |
| IA06003 | PLC 技术及其应用 | 2 | |
| EC06015 | 机器人及其控制 | 2 | |
| EC06071 | 机器视觉检测 | 2 | |
| EC06018 | 控制系统仿真技术 | 2 | |
| IA06011 | 人工智能导论 | 2 | |
| EC06060 | 数据挖掘技术 | 2 | |
| EC06063 | 数控系统 | 2 | |

续表

| 编码 | 课程名称 | 学分 | 备注 |
|---------|----------------|----|----|
| EI05010 | 数字图像处理 | 2 | |
| EC06025 | 系统辨识 | 2 | |
| EC06026 | 系统工程导论 | 2 | |
| EC06027 | 现场总线技术及应用 | 2 | |
| EC07013 | 现代控制理论 | 2 | |
| EC06031 | 运动控制系统 | 2 | |
| EC06072 | 智能信息处理 | 2 | |
| EC06035 | 自动化专业英语 | 2 | |
| EC06073 | 大数据处理 | 2 | |
| EC06074 | C++面向对象程序设计 | 2 | |
| EC06075 | 自适应控制 | 2 | |
| EI05014 | 计算机视觉导论 | 2 | |
| EC06077 | 移动平台嵌入式系统设计与应用 | 2 | |
| EC06076 | 复杂网络导论 | 2 | |

注：前面 33 门课程至少选修 12 学分，剩余学分既可在本专业选修，也允许跨专业、跨学院选修课程。

(六) 集中实践 (32 学分)

| 编码 | 课程名称 | 学分 | 备注 |
|---------|------------|----|------|
| GE09030 | 中文写作实训 | 1 | 1 周 |
| GE09006 | 金工实习 A | 2 | 2 周 |
| GE09020 | 电工实习 | 2 | 2 周 |
| GE09020 | 电子实习 | 2 | 2 周 |
| EC10007 | 电子技术综合设计 | 2 | 2 周 |
| EC10008 | 微机应用系统综合设计 | 2 | 2 周 |
| EC10009 | 认识实习 | 1 | 1 周 |
| EC10010 | 生产实习 | 2 | 2 周 |
| EC10011 | 专业课程设计 | 2 | 2 周 |
| EC10012 | 专业综合实验 | 1 | 1 周 |
| EC10013 | 导师课程 | 1 | 1 周 |
| EC10014 | 毕业实习 | 2 | 2 周 |
| EC10015 | 毕业设计 | 12 | 12 周 |

注：在读期间参加 SIT、学科竞赛，经学院认定，可将实践学分记录进成绩单，但此成绩不能替代其他课程学分，且不参与毕业学分计算。

六、课程责任教师一览表

| 序号 | 姓名 | 职称 | 学历学位 | 专业特长 | 课程 (专业核心、专业选修、通识选修) |
|----|-----|----|------|-----------|--------------------------------------|
| 1 | 曹一家 | 教授 | 博士 | 电力系统分析与控制 | 电气工程新技术导论 |
| 2 | 罗安 | 教授 | 博士 | 电能质量与电气节能 | 电气工程新技术导论 |
| 3 | 姚建刚 | 教授 | 硕士 | 电力系统分析与控制 | 电力市场、电力技术经济 |
| 4 | 李欣然 | 教授 | 博士 | 电力系统分析与控制 | 电力系统分析、电气工程新技术导论、电力系统基础 |
| 5 | 刘光晔 | 教授 | 博士 | 电力系统分析与控制 | 电力系统分析、电力系统基础 |
| 6 | 黄纯 | 教授 | 博士 | 电力系统保护与控制 | 电力系统自动控制技术、配电网络 |
| 7 | 罗滇生 | 教授 | 博士 | 电力系统分析与控制 | 电力技术经济、电力市场、高电压技术 |
| 8 | 汪汎 | 教授 | 博士 | 高电压与绝缘技术 | 高电压技术、高压电力设备在线监测及故障诊断 |
| 9 | 罗隆福 | 教授 | 博士 | 电能变换系统与装备 | 电机学、特高压输电技术、电气工程新技术导论 |
| 10 | 黄守道 | 教授 | 博士 | 电力电子与电机控制 | 电气工程新技术导论、电机控制技术、电力伺服技术、电力电子与电机系统可靠性 |

续表

| 序号 | 姓名 | 职称 | 学历学位 | 专业特长 | 课程(专业核心、专业选修、通识选修) |
|----|-----|-----|------|------------|--------------------------|
| 11 | 周腊吾 | 教授 | 博士 | 电力电子与电机控制 | 电机学、电机设计 |
| 12 | 邓建国 | 教授 | 博士 | 电力电子与电机控制 | 电机学、电机设计 |
| 13 | 张志文 | 教授 | 博士 | 电能变换理论与新技术 | 微机原理及其应用 |
| 14 | 方厚辉 | 教授 | 硕士 | 智能建筑电气技术 | 电工技术、电力电子技术基础、建筑电气 |
| 15 | 彭敏放 | 教授 | 博士 | 电网络故障诊断 | 电路、电磁场与波 |
| 16 | 谭阳红 | 教授 | 博士 | 智能信息处理 | 电路、电磁场与波、电力系统可靠性 |
| 17 | 李勇 | 教授 | 博士 | 电力系统分析与控制 | 电力系统分析 |
| 18 | 沈征 | 教授 | 博士 | 电力电子技术 | 电力电子技术基础 |
| 19 | 王俊 | 教授 | 博士 | 电力电子技术 | 电力电子技术基础 |
| 20 | 帅智康 | 教授 | 博士 | 电力电子技术 | 电力电子技术基础 |
| 21 | 黎灿兵 | 副教授 | 博士 | 电力系统分析与控制 | 电力系统分析、智能电网概论 |
| 22 | 毛弋 | 副教授 | 硕士 | 电力系统规划 | 电力系统规划、配电网络、电力市场 |
| 23 | 熊高峰 | 副教授 | 博士 | 电力系统分析与控制 | 电力系统分析、自动控制原理 |
| 24 | 江岳春 | 副教授 | 博士 | 电力市场 | 电力技术经济、电器学、电力市场 |
| 25 | 李培强 | 副教授 | 博士 | 电力系统分析与控制 | 电力系统分析、电力系统优化基础 |
| 26 | 罗德荣 | 副教授 | 博士 | 电力电子与电机系统 | 电机设计、电力电子装置设计 |
| 27 | 荣飞 | 副教授 | 博士 | 电力电子与电机控制 | 电力电子技术基础、新能源发电技术、发电厂动力部分 |
| 28 | 许加柱 | 副教授 | 博士 | 电能变换系统与装置 | 电机学、电力系统过电压、电力电子与电机系统可靠性 |
| 29 | 黄科元 | 副教授 | 博士 | 电机控制、新能源发电 | 电机控制技术, 新能源发电技术 |
| 30 | 向阳 | 副教授 | 硕士 | 电气系统自动控制技术 | 电路、电磁场与波 |
| 31 | 张晚英 | 副教授 | 博士 | 电力系统自动化 | 电路、电磁场与波 |
| 32 | 江亚群 | 副教授 | 博士 | 电能质量分析与控制 | 电工技术、电力电子技术基础 |
| 33 | 黄清秀 | 副教授 | 博士 | 信号处理技术 | 电路、电磁场与波 |
| 34 | 黄小庆 | 讲师 | 博士 | 电力系统分析与控制 | 电力系统分析、电气工程 CAD |
| 35 | 鲁文军 | 讲师 | 博士 | 电力系统保护与控制 | 电力系统自动控制技术、电力系统继电保护原理 |
| 36 | 王姿雅 | 讲师 | 博士 | 电力市场、智能电网 | 电气工程 CAD 技术、电器学 |
| 37 | 邵霞 | 讲师 | 博士 | 继电保护、输变电技术 | 电力系统微机保护 |
| 38 | 姜燕 | 讲师 | 博士 | 电工理论与新技术 | 电工技术、电力电子技术基础 |
| 39 | 高剑 | 讲师 | 博士 | 分布式发电技术 | 电力电子技术基础 |
| 40 | 朱彦卿 | 讲师 | 博士 | 电器科学与工程技术 | 电路、电磁场与波 |
| 41 | 程苗苗 | 讲师 | 博士 | 电力电子技术 | 电力电子技术基础 |
| 42 | 冯壺径 | 讲师 | 博士 | 电机控制 | 电机控制技术 |
| 43 | 刘平 | 讲师 | 博士 | 电机控制 | 电工技术、电机控制技术、 |
| 44 | 李幸 | 讲师 | 博士 | 电机控制 | 电机控制技术、电力伺服技术、 |
| 45 | 孙秋芹 | 讲师 | 博士 | 高电压与绝缘技术 | 高电压技术、电力系统过电压 |
| 46 | 彭红海 | 讲师 | 硕士 | 继电保护、输变电技术 | 电力系统微机保护 |
| 47 | 王娜 | 讲师 | 硕士 | 继电保护、输变电技术 | 电力系统微机保护 |
| 48 | 邓晓 | 讲师 | 硕士 | 电工理论与新技术 | 电工技术、电力电子技术基础 |
| 49 | 李中发 | 讲师 | 学士 | 电工理论与新技术 | 电工技术、电力电子技术基础 |
| 50 | 邹津海 | 讲师 | 学士 | 电工理论与新技术 | 电工技术、电力电子技术基础 |
| 51 | 刘小红 | 讲师 | 硕士 | 智能电机控制 | 建筑电气、电器学 |
| 52 | 马伏军 | 助教 | 硕士 | 电力电子 | 电力电子技术基础 |

七、专业责任教授

| 序号 | 姓名 | 职称 | 学历学位 | 专业特长 | 负责专业核心课程 |
|----|-----|----|------|-------------|-----------------|
| 1 | 帅智康 | 教授 | 博士 | 电力系统基础与电力电子 | 电力系统基础、电力电子技术基础 |

Electrical Engineering and Automation

I . Objectives

The program cultivates moral, wisdom, physical and virtue education for the all-round development, and trains the undergraduates to grasp basic theory, knowledge, approach and skill of the field of electrical engineering, and nurtures inter-disciplinary engineering technology talents with capabilities of such job fields related to electrical engineering, including system planning, design and building, system operation and control, electrical equipment manufacturing, test analysis, electrical energy conversion and high efficiency application, development and utilization of smart grid and renewable energies.

II . Basic Specifications

1. They should have good humanistic, social and science quality, correct outlook on life and values, engineering occupation morality of honesty and trustworthiness, and strong sense of social responsibility.

2. They should have some ability of organization and management, and strong interpersonal skills. Also, they should have international vision and the ability of cross-cultural communication, competition and cooperation.

3. They should be familiar with the related policy of energy and electrical industrial of national macroeconomic development, and know relevant law and regulations, and understand and evaluate correctly the effect of major projects' implementation to society, health, safety, legislation and culture.

4. They should have knowledge of mathematics, natural science and Engineering science which is required by the jobs related with engineering technique. They should have good engineering basis, fundamentals of management science and comprehensive ability of foreign language. Also, they can solve complex engineering problems.

5. They should master fundamental theory and knowledge of our specialty systematically, including circuit theory, electronics technique, software and hardware of computer, electrical machines, power electronics, power system analysis, high voltage technology, etc. They should have complicated engineering practical experience, and know the research status and development trend of the frontier of our specialty.

6. They should obtain high-quality engineering practice training and have skillful ability of computer applications. They should have the ability to solve all kinds of complex problems by using electrical engineering discipline theory and technology synthetically.

7. They should have creative consciousness and the attitude to pursuit innovation. They can design and develop new products, techniques and equipment by using electric engineering discipline theory and technology synthetically. In the design process, they can consider comprehensively various constraints, such as economy, environment, legislation, safety, health, ethics and so on.

8. They should master and understand novel theory, method and technology of other inter-discipline, and have the research ability for in-depth study.

9. They should master basic methods of searching and accessing to information, and have the ability of lifetime learning and adapt to the social development.

10. They should master the fundamental theory and techniques of at least one of the following majors:

Major field 1: Power System and Its Automation.

Major field 2: Electrical Machines Applicants and its control.

Major field 3: Power Electronics Technology.

Major field 4: High Voltage and Insulation Technology.

III. Characteristics

It emphasizes on high power electricity and also covers low power electricity. It also takes into account both software and hardware, both instruments and systems, and intensifies engineering applications.

IV. Length of Schooling, Basic Requirements for Graduation, and Degree Conferment

1. The length of schooling for undergraduate studies is four years, with a flexible length lasting from 3 to 6 years, based on the regulation of credit system.

2. Students of Electrical Engineering major are expected to complete a minimum of 170 credits upon graduation, and the required credits for different courses are illustrated in the following table.

| Course category | Required General Education Courses | Introductory Major Courses | Major Survey Courses | Required Core Courses | Restricted Electives | General Education Electives | Intensive Practice | Total |
|-----------------|------------------------------------|----------------------------|----------------------|-----------------------|----------------------|-----------------------------|--------------------|-------|
| Credits | 27 | 24 | 43 | 11 | 25 | 8 | 32 | 170 |

3. On successful completion of the prescribed courses and intensive practice, students, who are qualified enough to meet all the requirements of this program, will thus be awarded the Bachelor's Degree of Engineering.

V. Curriculum and Credits

1. General Education Courses [required 27 + (6) + elective 8 credits]

The general education courses consist of required courses and elective courses. General education electives are designed according to the *Curriculum Design of General Education Electives of Hunan University*, in which a management course is mandatory requirement. Required general education courses are illustrated in the following table.

| Code | Course Title | Credit(s) | Remarks |
|---------|---|------------|---------|
| GE01101 | Introduction to Maoism and Theoretical System of Socialism with Chinese Characteristics | 3+ (3) | |
| GE01039 | Moral Cultivation and Law Basics | 1.5+ (1.5) | |
| GE01100 | Current Situation and Policies | 0.5+ (1.5) | |
| GE01102 | Outline of Modern Chinese History | 2 | |
| GE01103 | Fundamentals of Marxism I | 2 | |
| GE01104 | Fundamentals of Marxism II | 2 | |

Cont

| Code | Course Title | Credit(s) | Remarks |
|--------------|--|-----------|---------|
| GE01012(-15) | College English | 8 | |
| GE01088 | Computer Proficiency Test | 0.5 | |
| GE01093 | Introduction to Computer Science and Programming | 2.5 | |
| GE01107(-13) | Psychological Health & Career Planning | 1 | |
| GE01089(-92) | Physical Education | 4 | |

2. Introductory Major Courses(24 credits)

| Code | Course Title | Credit(s) | Remarks |
|-------------|---|-----------|------------|
| GE03025 | Advanced Mathematics A(I) | 5 | compulsory |
| GE03026 | Advanced Mathematics A(II) | 5 | compulsory |
| GE03003 | Linear Algebra A | 3 | compulsory |
| GE03004 | Probability and Mathematical Statistics A | 3 | compulsory |
| GE03005 | General Physics A(I) | 3 | compulsory |
| GE03006 | General Physics A(II) | 3 | compulsory |
| GE03007(08) | Experiments in General Physics A | 2 | compulsory |

3. Major Survey Courses (43 credits)

| Code | Course Title | Credit(s) | Remarks |
|---------|---|-----------|------------|
| EC04011 | Electric Circuit | 4 | compulsory |
| EC04012 | Electric Circuit Experiments | 1 | compulsory |
| EC04013 | Electromagnetic Field and Wave | 3 | compulsory |
| EC04014 | Fundamental of Analog Electronic Circuits | 4 | compulsory |
| EC04015 | Experiments on Analog Circuits | 1 | compulsory |
| EC04016 | Fundamental of Digital Electronic Circuits | 4 | compulsory |
| EC04017 | Experiments on Digital Circuits | 1 | compulsory |
| EC04018 | Principle and Application of Microcomputer | 4 | compulsory |
| EC04019 | Experiments on Principle and Application of Microcomputer | 1 | compulsory |
| EC04020 | Integral Transformation | 2 | compulsory |
| EC04021 | Complex Variables Functions | 2 | compulsory |
| EC04022 | Engineering Graphics | 3 | compulsory |
| EC04023 | Principle of Automatic Control | 4 | compulsory |
| EC04024 | Signals and Systems | 3 | compulsory |
| EC04025 | Sensor and Detector Technology | 3 | compulsory |
| EC05003 | Fundamentals of Power Electronics | 3 | compulsory |

4. Required Core Courses (11 credits)

| Code | Course Title | Credit(s) | Remarks |
|---------|------------------------------|-----------|------------|
| EC05017 | Electrical Machinery I | 3 | compulsory |
| EC05018 | Electrical Machinery II | 4 | compulsory |
| EC05019 | Fundamentals of Power System | 4 | compulsory |

5. Restricted Electives(25 credits)

| Code | Course Title | Credit(s) | Remarks |
|---------|--|-----------|---------|
| EC06085 | Power System Analysis | 2 | |
| EC06086 | Primary Electrical System of Power Plant | 2.5 | |
| EC06087 | Protective Relaying in Power System | 2.5 | |
| EC06088 | High Voltage Technology | 2 | |
| EC06089 | Power System Automatic Control Technology | 2 | |
| EC06020 | Distribution Network | 2 | |
| EC06008 | Microcomputer Protection of Power System | 2 | |
| EC06061 | Power System Reliability | 2 | |
| EC06091 | Fundamentals of Power System Optimization | 2 | |
| EC06055 | An Introduction to the Smart Grid | 2 | |
| EC06007 | Power System Planning | 2 | |
| EC06092 | Electric Motor Control Technique | 2.5 | |
| EC06093 | Electrical Machines Design | 2.5 | |
| EC06094 | Power Electronic Device Design | 2 | |
| EC06095 | Power Servo Technique | 2 | |
| EC06096 | Electrical Measurement and Electrical Machine Testing Technology | 2 | |
| EC07008 | Electrical Appliances | 2 | |
| EC06097 | Fundamentals of Electrical Equipment Electromagnetic Design | 2 | |
| EC06098 | Fundamentals of Electrical Equipment Mechanical Design | 2 | |
| EC06045 | Matlab and Electrical Machine System Simulation | 2 | |
| EC06099 | Micro and Special Motor Technology | 2 | |
| EC06100 | Power Electronics and Electrical Machine System Reliability | 2 | |
| EC06101 | Over-voltage in Power Systems | 2 | |
| EC06102 | On-line Monitoring and Fault diagnosis of High Voltage Power Equipment | 2 | |
| EC06103 | Ultra High Voltage Transmission Technology | 2 | |
| EC06013 | Power Equipment of Power Plant | 2 | |
| EC06006 | Technical Economics in Electricity | 2 | |
| EC06041 | Electricity Markets | 2 | |
| EC06002 | CAD Technology in Electrical Engineering | 2 | |
| EC06036 | Introduction to New Technology of Electrical Engineering | 2 | |
| EC06042 | Renewable Resource Generation | 2 | |
| EC06104 | Building Electricity | 2 | |
| EC06105 | Specialized English for Electrical Engineering | 2 | |
| EI05011 | Embedded System and Its Applications | 2 | |
| IA07004 | Scientific and Engineering Calculation Method and Application | 3 | |
| EC06046 | Fundamentals of Software Technology | 3 | |
| EC06090 | Power Quality Detection and Control | 2 | |
| EC06078 | Fundamentals of MEMS | 2 | |
| IA07001 | Engineering Design of Measurement and Control System | 2 | |

Cont

| Code | Course Title | Credit(s) | Remarks |
|---------|---|-----------|---------|
| EC06079 | Photoelectric Detection Technology | 2 | |
| EC06080 | MATLAB Program Design | 2 | |
| IA06010 | Precision Measurement Technology | 2 | |
| EC06081 | Wireless Sensing Technology | 2 | |
| EC06082 | Virtual Instrumentation | 2 | |
| EC06083 | Intelligent Instrument | 2 | |
| EC06084 | Process Control and Automation Instrument B | 2 | |
| EI07005 | Introduction to ASIC Design | 2 | |
| EI06019 | Digital Signal Processing and Its Applications | 2 | |
| EC06001 | Fundamental of Electronic Design Automation | 2 | |
| EI06021 | EMC Technology | 2 | |
| EI05017 | Optical Fiber Communications | 2 | |
| EI07006 | Computer Networks | 2 | |
| EC06067 | Cognitive Radio | 2 | |
| EI06025 | Digital TV Technologies | 2 | |
| EC06106 | Principle of Communication B | 2 | |
| IA06012 | Digital Signal Processing B | 2 | |
| EI06028 | Microwaves and Antennas | 2 | |
| EI06029 | Satellite Communication | 2 | |
| EI06031 | Wireless Communication Technology | 2 | |
| EI05013 | Communication System Simulation | 2 | |
| EI06034 | Introduction of Mobile Communication | 2 | |
| EC06065 | Speech Signal Processing | 2 | |
| EC06066 | Radio-frequency Electronic Circuits | 2 | |
| EI07003 | Information Theory and Coding Technology | 2 | |
| EC06068 | Signal Integrity of GHz Circuits | 2 | |
| EC06069 | IC Design by Cadence Simulation | 2 | |
| EC06033 | Intelligent Control | 2 | |
| EC06070 | Pattern Recognition | 2 | |
| IA06003 | PLC Technology and Applications | 2 | |
| EC06015 | Robotics and Robot Control | 2 | |
| EC06071 | Machine Vision Inspection Technology | 2 | |
| EC06018 | Control System Simulation Technology | 2 | |
| IA06011 | Introduction to Artificial Intelligence | 2 | |
| EC06060 | Data Mining Technology | 2 | |
| EC06063 | Computer Numerical Control System | 2 | |
| EI05010 | Digital Image Processing | 2 | |
| EC06025 | System Identification | 2 | |
| EC06026 | Introduction to System Engineering | 2 | |
| EC06027 | Field Bus Technology and Applications | 2 | |
| EC07013 | Modern Control Theory | 2 | |
| EC06031 | Motion Control System | 2 | |
| EC06072 | Intelligent Information Processing | 2 | |
| EC06035 | Specialized English for Automation | 2 | |
| EC06073 | Big Data Processing | 2 | |
| EC06074 | C++ Object-oriented Programming | 2 | |
| EC06075 | Self-adaptation Control | 2 | |
| EI05014 | Introduction to Computer Vision | 2 | |
| EC06077 | Embedded System Design and Applications Based on Mobile Platforms | 2 | |
| EC06076 | Introduction to Complex Network | 2 | |

Note: At least 12 credits should be elected, in the first 33 courses. The remaining credits can be elected in major, cross-major or cross-college elective courses.

6. Intensive Practice (32 credits)

| Code | Course Title | Credit(s) | Remarks |
|---------|--|-----------|----------|
| GE09030 | Chinese Writing Training | 1 | 1 week |
| GE09006 | Smith-craft Practice A | 2 | 2 weeks |
| GE09020 | Electrical Engineering Practice | 2 | 2 weeks |
| GE09020 | Electronic Engineering Practice | 2 | 2 weeks |
| EC10007 | Comprehensive Design of Electronics Technique | 2 | 2 weeks |
| EC10008 | Comprehensive Design of Microcomputer Application System | 2 | 2 weeks |
| EC10009 | Professional Cognitive Practice | 1 | 1 week |
| EC10010 | Professional Productive Practice | 2 | 2 weeks |
| EC10011 | Specialty Course Project | 2 | 2 week |
| EC10012 | Specialty Comprehensive Experiment | 1 | 1 weeks |
| EC10013 | Tutor Course | 1 | 1 week |
| EC10014 | Undergraduate Practice | 2 | 2 weeks |
| EC10015 | Undergraduate Thesis | 12 | 12 weeks |

Note: Practice credits can be added into the academic transcript, when the participation of SIT or discipline competition is affirmed by college. However, the added practice credits can not be used to replace course credits and are not included in the required credits for graduation.

VI. Course Instructor List

| No. | Name | Academic Title | Educational Background | Research Areas | Courses |
|-----|---------------|----------------|------------------------|--|--|
| 1 | Cao Yijia | Prof. | Ph. D | Power System Analysis and Control | Introduction to New Technology of Electrical Engineering |
| 2 | Luo An | Prof. | Ph. D | Power Quality and Electric Energy Saving | Introduction to New Technology of Electrical Engineering |
| 3 | Yao Jiangang | Prof. | Master | Power System Analysis and Control | Electricity Markets, Technical Economics in Electricity |
| 4 | Li Xinran | Prof. | Ph. D | Power System Analysis and Control | Power System Analysis, Introduction to New Technology of Electrical engineering, Fundamentals of Power System |
| 5 | Liu Guangye | Prof. | Ph. D | Power System Analysis and Control | Power System Analysis, Fundamentals of Power System |
| 6 | Huang Chun | Prof. | Ph. D | Power System Protection and Control | Power System Automatic Control Technology, Distribution Network |
| 7 | Luo Diansheng | Prof. | Ph. D | Power System Analysis and Control | Technical Economics in Electricity, Electricity Markets, High Voltage Technology |
| 8 | Wang Feng | Prof. | Ph. D | High Voltage Technology and Insulation | High Voltage Technology, On-line Monitoring and Fault Diagnosis of High Voltage Power Equipment |
| 9 | Luo Longfu | Prof. | Ph. D | Electric Energy Conversion System and Equipments | Electric Machinery, Ultra High Voltage Transmission Technology, Introduction to New Technology of Electrical Engineering |

Cont

| No. | Name | Academic Title | Educational Background | Research Areas | Courses |
|-----|---------------|----------------|------------------------|---|---|
| 10 | Huang Shoudao | Prof. | Ph. D | Power Electronics and Motor Control | Introduction to New Technology of Electrical Engineering, Electrical machine Control Technology, Power Servo Technique, Power Electronics and Electrical Machine System Reliability |
| 11 | Zhou Lawu | Prof. | Ph. D | Power Electronics and Motor Control | Electrical Machinery, Electrical Machine Design |
| 12 | Deng Jiangguo | Prof. | Ph. D | Power Electronics and Motor Control | Electrical Machinery, Electrical Machine Design |
| 13 | Zhang Zhiwen | Prof. | Ph. D | Theory and New technology of Electrical Energy Transformation | Principle and Application of Microcomputer |
| 14 | Fang Houhui | Prof. | Master | Electrical Technology of Intelligent Buildings | Electrotechnics, Fundamentals of Power Electronics, Building Electricity |
| 15 | Peng Minfang | Prof. | Ph. D | Fault Diagnosis of Electric Network | Electric Circuit, Electromagnetic Field and Wave |
| 16 | Tan Yanghong | Prof. | Ph. D | Intelligent Information Processing | Electric Circuit, Electromagnetic Field and Wave, Power System Reliability |
| 17 | Li Yong | Prof. | Ph. D | Power System Analysis and Control | Power System Analysis |
| 18 | Shen Zheng | Prof. | Ph. D | Power Electronics Technology | Fundamentals of Power Electronics |
| 19 | Wang Jun | Prof. | Ph. D | Power Electronics Technology | Fundamentals of Power Electronics |
| 20 | Shuai Zhikang | Prof. | Ph. D | Power Electronics Technology | Fundamentals of Power Electronics |
| 21 | Li Canbing | A. P. | Ph. D | Power System Analysis and Control | Power System Analysis, Introduction to the Smart Grid |
| 22 | Mao Yi | A. P. | Master | Power System Planning | Power System Planning, Distribution Network, Electricity Markets |
| 23 | Xiong Gaofeng | A. P. | Ph. D | Power System Analysis and Control | Power System Analysis, Principle of Automatic Control |
| 24 | Jiang Yuechun | A. P. | Ph. D | Power System Markets | Technical Economics in Electric Power, Electrical appliances, Electricity Markets |
| 25 | Li Peiqiang | A. P. | Ph. D | Power System Analysis and Control | Power System Analysis, Fundamentals of Power System Optimization |
| 26 | Luo Derong | A. P. | Ph. D | Power Electronics and Motor System | Electric Machine Design, Power Electronics Device Design |
| 27 | Rong Fei | A. P. | Ph. D | Power Electronics and Motor Control | Fundamentals of Power Electronics, Renewable Resource Generation, Power Equipment of Power Plant |
| 28 | Xu Jiazhu | A. P. | Ph. D | Electric Energy Conversion System and Equipments | Electric Machinery, Over-voltage in Power Systems, Power Electronics and Electrical Machine System Reliability |
| 29 | Huang Keyuan | A. P. | Ph. D | Electric Motor Control and Renewable Resource Generation | Electric Machine Control Technology, Renewable Resource Generation |

Cont

| No. | Name | Academic Title | Educational Background | Research Areas | Courses |
|-----|----------------|----------------|------------------------|--|---|
| 30 | Xiang Yang | A. P. | Master | Automatic Control Technology of Electric System | Electric Circuit, Electromagnetic Field and Wave |
| 31 | Zhang Wanying | A. P. | Ph. D | Power System Automation | Electric Circuit, Electromagnetic Field and Wave |
| 32 | Jiang Yaqu | A. P. | Ph. D | Power Quality Analysis and Control | Electrotechnics, Fundamentals of Power Electronics |
| 33 | Huang Qingxiu | A. P. | Ph. D | Signal Processing Technology | Electric Circuit, Electromagnetic Field and Waveform |
| 34 | Huang Xiaoqing | Lecturer | Ph. D | Power System Analysis and Control | Power System Analysis, CAD Technology in Electrical Engineering |
| 35 | Lu Wenjun | Lecturer | Ph. D | Power System Protection and Control | Microcomputer Protection of Power System and Power System Automatic Control Technology, Protective Relaying in Power System |
| 36 | Wang Ziya | Lecturer | Ph. D | Power System Markets, Smart Grid | CAD Technology in Electrical Engineering, Electrical Appliances |
| 37 | Shao Xia | Lecturer | Ph. D | Relay Protection, Power Transmission and Transformation Technology | Microcomputer Protection of Power System |
| 38 | Jiang Yan | Lecturer | Ph. D | Electrical Theory and New Technology | Electrotechnics, Fundamentals of Power Electronics |
| 39 | Gao Jian | Lecturer | Ph. D | Distributed Power Generation Technology | Fundamental of Power Electronics |
| 40 | Zhu Yanqing | Lecturer | Ph. D | Electrical Science and Engineering Technology | Electric Circuit, Electromagnetic Field and Wave |
| 41 | Cheng Miaomiao | Lecturer | Ph. D | Power Electronics Technology | Fundamentals of Power Electronics |
| 42 | Feng Yaojing | Lecturer | Ph. D | Electric Motor Control | Electric Machine Control Technology |
| 43 | Liu Ping | Lecturer | Ph. D | Electric Motor Control | Electrotechnics, Electrical Machine Control Technology |
| 44 | Li Xing | Lecturer | Ph. D | Electric Motor Control | Electrical Machine Control Technology, Power Servo Techniqu |
| 45 | Sun Qiuqin | Lecturer | Ph. D | High Voltage Technology and Insulation | High Voltage Technology, Over-voltage in Power Systems |
| 46 | Peng Honghai | Lecturer | Master | Relay Protection, Power Transmission and Transformation | Microcomputer Protection of Powersystem, Protective Relaying in Power System |
| 47 | Wang Na | Lecturer | Master | Relay Protection, Power Transmission and Transformation | Microcomputer Protection of Powersystem, Protective Relaying in Power System |
| 48 | Deng Xiao | Lecturer | Master | Electrical Theory and New Technology | Electrotechnics, Fundamentals of Power Electronics |

Cont

| No. | Name | Academic Title | Educational Background | Research Areas | Courses |
|-----|--------------|----------------|------------------------|--------------------------------------|--|
| 49 | Li Zhongfa | Lecturer | Bachelor | Electrical Theory and New Technology | Electrotechnics, Fundamentals of Power Electronics |
| 50 | Zou Jinhai | Lecturer | Bachelor | Electrical Theory and New Technology | Electrotechnics, Fundamentals of Power Electronics |
| 51 | Liu Xiaohong | Lecturer | Master | Intelligent Motor Control | Building Electricity, Electrical Appliances |
| 52 | Ma Fujun | T. A. | Master | Power Electronics Technology | Fundamentals of Power Electronics |

A. P. (Associate Professor)

TA (Teaching Assistants)

VII. Course Scheduler

| No. | Name | Academic Title | Educational Background | Research Areas | Courses |
|-----|-----------|----------------|------------------------|-----------------------------------|------------------------------|
| 1 | Li Xinran | Prof. | Ph. D | Power System Analysis and Control | Fundamentals of Power System |

(翻译人:王俊)