计算机网络组网技术 教学大纲

Computer networking technology Subject Syllabus

一、课程信息 Subject Information

课程编号: Subject ID	3100213019	开课学期: Semester	6
课程分类: Category	专业教育 PA	所属课群: Section	专业平台 MT
课程学分: Credit Points	2.5	总学时/周: Total Hours/Weeks	40
理论学时: LECT. Hours	24	实验学时: EXP. Hours	16
PBL 学时: PBL Hours	0	实践学时/周: PRAC. Hours/Weeks	0
开课学院: College	东北大学 悉尼智能科技学院	适用专业: Stream	计算机科学与技术 CST
课程属性: Pattern	选修 Elective	课程模式: Mode	自建 NEU
中方课程协调人: NEU Coordinator	王聪 WangCong	成绩记载方式: Result Type	百分制 Marks
先修课程: Requisites	计算机网络 ComputerNetwork		
英文参考教材: EN Textbooks	无 none		
中文参考教材: CN Textbooks	《计算机网络组网与配置技术》，清华大学出版社，2012		
教学资源: Resources	无 none		
课程负责人(撰写人): SubjectDirector		提交日期: Submitted Date	3/6/2023
任课教师(含负责人): Taught by			
审核人: Checked by	韩鹏	批准人: Approvedby	史闻博
		批准日期: Approved Date	3/6/2023

二、教学目标 Subject Learning Objectives (SLOs)

注：毕业要求及指标点可参照悉尼学院本科生培养方案，可根据实际情况增减行数

Note: GA and index can be referred from undergraduate program in SSTC website. Please add/reduce lines based on subject.

<table>
<tr><td>整体目标:
Overall Objective</td><td colspan="2">本课程旨在让学生能理解网络基础、网络的组建与应用、网络安全技术应用、网络的使用、管理与维护等知识，掌握一定网络的基本应用技能，网络工程设计实施能力。实验是本课程必不可少的重要手段，其任务是通过实验验证课堂所学的知识，培养学生组网、管网的能力。

This course aims to enable students to understand the knowledge of network foundation, network construction and application, network security technology application, network use, management and maintenance, master some basic network application skills, and network engineering design and implementation ability. Experiment is an essential and important means of this course. Its task is to verify the knowledge learned in class through experiment and cultivate students' ability of networking and network management.</td></tr>
<tr><td rowspan="4">（1）专业目标:
Professional Ability</td><td>1-1</td><td>理解计算机网络的关键架构原理，即协议分层和服务模型。
Understand the key architectural principles of the Internet, namely protocol layering and service models.</td></tr>
<tr><td>1-2</td><td>熟悉各层典型网络设备的架构、性能和特点。
Be familiar with the architecture, performance and characteristics of typical network equipment at each layer.</td></tr>
<tr><td>1-3</td><td>掌握网络硬件、软件、管理的组织和架构，能够进行小型局域网的组织和管理。
Master network hardware, software, management organization and architecture, can carry on the organization and management of small local area network.</td></tr>
<tr><td>1-4</td><td>理解广域网、无线局域网所涉及的主流标准、协议及路由转发算法。
Understand the mainstream standards, protocols and routingalgorithms involved in WAN and WLAN.</td></tr>
<tr><td rowspan="2">（2）德育目标:
Essential Quality</td><td>2-1</td><td>理解计算机网络对于国家战略安全与国防的重要意义。
Understand the significant meanings of the computer networks in security and national defense.</td></tr>
<tr><td>2-2</td><td>认识到创新能力的重要性。
Students should realize the importance of innovation ability.</td></tr>
<tr><td colspan="3">课程教学目标与毕业要求的对应关系 Matrix of GA & SLOs</td></tr>
<tr><td>毕业要求 GA</td><td>指标点 GA Index</td><td>教学目标 SLOs</td></tr>
<tr><td>1、工程知识：能够将数学、自然科学、工程基础和专业知识用于解决复杂工程问题。</td><td>指标点 1-3：了解本专业涉及相关行业的发展趋势以及相关产业的运营模式，具备在本专业相关领域进行工程设计、技术创新的能力。</td><td>1-1，1-2，2-2</td></tr>
</table>

Engineering knowledge: Able to apply mathematics, science, engineering fundamentals and expertise to solve complex engineering problems.	Indicator 1-3: Understand the development trend and operation mode of related industries of this major, and have the ability to carry out engineering design and technological innovation in related fields of this major.	
3、设计/开发解决方案：能够设计针对复杂工程问题的解决方案，设计满足特定需求的系统、单元或流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。 Design/Development Solutions: Can design solutions to complex engineering problems, design systems, units or processes that meet specific needs, and be innovative in the design process, taking into account social, health, safety, legal, cultural and environmental factors.	指标点 3-1：能够设计针对本专业相关复杂工程问题的解决方案，能够设计和开发实现特定功能、满足特定需求的信息传输、信号处理或网络通信系统；	1-4
	指标点 3-3：能够在设计和开发的各个环节中综合考虑社会、健康、安全、法律、文化以及环境等因素。 Metric point 3-3: The ability to integrate social, health, safety, legal, cultural and environmental factors into all aspects of design and development.	1-3，1-4
4、研究：能够基于科学原理并采用科学方法对复杂工程问题进行研究，包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。 Research: Able to conduct research on complex engineering problems based on scientific principles and using scientific methods, including designing experiments, analyzing and interpreting data, and drawing reasonable and effective conclusions through information synthesis.	指标点 4-3：能够追踪国际前沿技术动态，掌握本专业涉及的重要技术指标以及达到指标所需的技术途径。 Indicator point 4-3: can track the international cutting-edge technology trends, master the important technical indicators involved in the major and the technical approaches needed to achieve the indicators.	1-4，2-1，2-2

三、教学内容 Content (Topics)

注：以中英文填写，各部分内容的表格可根据实际知识单元数量进行复制、扩展或缩减

Note: Filled in both CN and EN, extend or reduce based on the actual numbers of knowledge unit

(1) 理论教学 Lecture

知识单元序号: Knowledge Unit No.	1		支撑教学目标: SLOs Supported	1-1，2-1，2-2
知识单元名称 Unit Title	计算机网络概述 Overview of Computer Networks			
知识点: Knowledge Delivery	计算机网络的概念 What is the Internet			
	OSI 参考模型和 TCP/IP 参考模型 OSI model and TCP/IP model			
	计算机网络的分类 Computer Network Classification			
	IP 地址划分 IP address partition			
	IPv6IPv6			
学习目标: Learning Objectives	了解: Recognize	计算机网络与因特网架构，因特网的历史 The structure of computer networks and Internet, and the history of Internet		
	理解: Understand	网络体系结构和 TCP/IP 协议 Network architecture and TCP/IP protocol		
	掌握: Master	IPv4 的地址的组成、分类和 VLSM 子网划分方法。IPv4 address composition, classification and VLSM subnet partition method		
德育目标 Moral Objectives	了解计算机网络对于社会经济发展、国家安全的重要意义 The significant meanings of computer networks in society development and national security			
重点: Key Points	网络体系结构和 TCP/IP 协议 Network architecture and TCP/IP protocol			
难点: Focal points	数据封装、可变长子网掩码 Data encapsulation, variable length subnet mask			

知识单元序号: Knowledge Unit No.	2		支撑教学目标: SLOs Supported	1-2，1-4
知识单元名称 Unit Title	网络互联设备 Network equipment			
知识点: Knowledge Delivery	网络传输介质 Network transmission medium			
	中继器和集线器 Repeater and Hub			
	网桥和交换机 Bridges and switches			
	路由器 Router			
学习目标: Learning Objectives	了解: Recognize	不同传输介质的类型和特点 Types and characteristics of different transmission media		
	理解: Understand	冲突域和广播域 Conflict domain and broadcast domain		
	掌握:	不同的网络设备的功能和特点		

	Master	Functions and characteristics of different network devices
德育目标 Moral Objectives	2-1 2-2	
重点: Key Points	网卡的类型；网络设备的功能 Type of network card; The functions of network devices	
难点: Focal points	网桥的作用；交换机与集线器的区别 The role of the bridge; The difference between switches and hubs	

知识单元序号: Knowledge Unit No.	3	支撑教学目标: SLOs Supported	1-2，1-3，1-4
知识单元名称 Unit Title	路由器基础与配置 Router basics and configuration		
知识点: Knowledge Delivery	路由器简介 Introduction to Router		
	系统结构 System organization		
	路由器的基本配置 The basic configuration of the router		
学习目标: Learning Objectives	了解: Recognize	路由器的基本结构和物理接口 The basic structure and physical interface of the router	
	理解: Understand	路由器的基本配置方法 The basic configuration method of the router	
	掌握: Master	路由器 IOS 和配置文件的备份和升级 Backup and upgrade router IOS and configuration files	
德育目标 Moral Objectives	2-1 2-2		
重点: Key Points	路由器的功能；路由器访问与控制；路由器配置；管理路由器的集中模式 The function of router; Router access and control; Router configuration; Manage the centralized mode of the router		
难点: Focal points	路由器的三种配置模式；常用的路由器配置命令 Three configuration modes of the router; Common router configuration commands		

知识单元序号: Knowledge Unit No.	4	支撑教学目标: SLOs Supported	1-2，1-3，1-4
知识单元名称 Unit Title	路由协议 routing protocol		
知识点: Knowledge Delivery	静态路由和动态路由协议 Static routing and dynamic routing protocols		
	RIP 路由协议 RIP Routing Protocol		
	OSPF 路由协议 OSPFRouting Protocol		
	EIGRP 路由协议 EIGRPRouting Protocol		
学习目标: Learning Objectives	了解: Recognize	不同类型的路由协议 Different types of routing protocols	
	理解:	静态路由的基本概念和配置，距离矢量路由协议和链	

	Understand	路状态路由协议的概念 Basic concepts and configuration of static routing, distance vector routing protocol and link state routing protocol concepts
	掌握: Master	RIP、OSPF 路由协议的基本概念和配置 Basic concepts and configurationofRIPandOSPF
德育目标 Moral Objectives	2-1 2-2	
重点: Key Points	静态路由的基本概念；RIP 路由协议的基本概念；OSPF 路由协议的基本概念；EIGRP 路由协议的基本概念和配置 he basic concept of static routing; The basic concept of RIP routing protocol; The basic concept of OSPF routing protocol; Basic concepts and configuration of EIGRP routing protocols	
难点: Focal points	动态路由概念；RIPv2 协议配置；OSPF 协议功能及配置 Dynamic Routing Concept; RIPv2 protocol configuration; OSPF protocol function and configuration	

知识单元序号: Knowledge Unit No.	5	支撑教学目标: SLOs Supported	1-2，1-3，1-4
知识单元名称 Unit Title	局域网基础 LAN Basics		
知识点: Knowledge Delivery	局域网基础、基本设备和概念 LAN basics, basic equipment and concepts		
	共享式以太网的特点 Features of Shared Ethernet		
	交换式以太网及 3 层交换技术 Switched Ethernet and Layer 3 switching technology		
学习目标: Learning Objectives	了解: Recognize	局域网概念和技术特点 Concepts and technical features of local area networks	
	理解: Understand	共享式以太网的工作原理 Traditional Ethernet	
	掌握: Master	以太网的各种组网技术，掌握交换式以太网的工作原理 All kinds of Ethernet networking technology, master the working principle of switched Ethernet	
德育目标 Moral Objectives	2-1 2-2		
重点: Key Points	以太网工作原理；2 层交换技术和 3 层交换技术的区别 Ethernet working principle; The difference between layer 2 switching and layer 3 switching		
难点: Focal points	以太网的种类及工作方式；3 层交换的工作原理 Ethernet type and working mode; How 3-layer switching works		

知识单元序号: Knowledge Unit No.	6	支撑教学目标: SLOs Supported	1-2，1-3，1-4

知识单元名称 Unit Title	交换机的基本配置和管理 Basic configuration and management of switches	
知识点: Knowledge Delivery	交换机的启动过程 Switch boot process	
	交换机的基本配 Basic configuration of the switch	
	生成树协议的基本原理 Fundamentals of STP	
学习目标: Learning Objectives	了解: Recognize	交换机的启动过程 Switch boot process
	理解: Understand	交换机的基本配置 Basic configuration of the switch
	掌握: Master	生成树协议的基本原理 Fundamentals of the spanning tree protocol
德育目标 Moral Objectives	2-1 2-2	
重点: Key Points	交换机地址表管理；交换机基本配置内容；冗余拓扑存在的问题；生成树协议 Exchange address list management; Basic configuration content of switch; The problem of redundant topology; Spanning tree protocol	
难点: Focal points	交换机地址表管理；生成树协议 Exchange address list management; Spanning tree protocol	

知识单元序号: Knowledge Unit No.	7	支撑教学目标: SLOs Supported	1-2，1-3，1-4
知识单元名称 Unit Title	无线局域网 WLAN		
知识点: Knowledge Delivery	无线局域网技术 WLANtechnology		
	无线局域网的标准 Wireless LAN standards		
	无线局域网的基本配置 Configuration of WLAN		
学习目标: Learning Objectives	了解: Recognize	无线局域网的标准 Wireless LAN standards	
	理解: Understand	无线局域网原理 Principles of WLAN	
	掌握: Master	无线局域网的配置 Wireless LAN configuration	
德育目标 Moral Objectives	2-1 2-2		
重点: Key Points	无线局域网概念；无线局域网安全 WLAN concept; Wireless LAN Security		
难点: Focal points	无线局域网的安全机制；配置 WLAN 的安全机制 Security mechanism of WLAN; Configure the WLAN security mechanism		

知识单元序号: Knowledge Unit No.	8	支撑教学目标: SLOs Supported	1-2，1-3，1-4
知识单元名称 Unit Title	WAN 技术 WANtechnology		

知识点: Knowledge Delivery	广域网协议、标准和设备 WAN protocols, standards, and devices	
	HDLC 和 PPP 的概念和基本配置 Concept and basic configuration of HDLC and PPP	
	帧中继的概念和基本配置 The concept and basic configuration of frame relay	
学习目标: Learning Objectives	了解: Recognize	广域网协议、标准和设备 WAN protocols, standards, and devices
	理解: Understand	广域网的接入技术 Wide Area Network Access Technology
	掌握: Master	HDLC、PPP、帧中继的概念和基本配置 HDLC, PPP, frame relay concepts and basic configuration
德育目标 Moral Objectives	2-1 2-2	
重点: Key Points	广域网的概念；HDLC 的概念和帧结构；点对点广域网协议 PPP 的概念和原理 Wide area network concept; HDLC concept and frame structure; The concept and principle of point-to-point wide area network protocol PPP	
难点: Focal points	帧中继的概念和基本配置 The concept and basic configuration of frame relay	

知识单元序号: Knowledge Unit No.	9	支撑教学目标: SLOs Supported	1-2，1-3，1-4
知识单元名称 Unit Title	ACL 和网络地址转换 ACL&NAT		
知识点: Knowledge Delivery	ACL 的概念和 ACL 的工作原理 The concept of ACL and how ACL works		
	标准 ACL、扩展 ACL 和命名 ACL 的配置 Configuration of standard ACLs, extended ACLs, and named ACLs		
	静态 NAT、动态 NAT 和 PAT Static NAT, dynamic NAT, and PAT		
学习目标: Learning Objectives	了解: Recognize	ACL 的概念和 ACL 的工作原理 The concept of ACL and how ACL works	
	理解: Understand	静态 NAT、动态 NAT 和 PAT 的概念 The concept of static NAT, dynamic NAT, and PAT	
	掌握: Master	标准 ACL、扩展 ACL 和命名 ACL 的配置 Configuration of standard ACLs, extended ACLs, and named ACLs	
德育目标 Moral Objectives	2-1 2-2		
重点: Key Points	ACL 的概念、作用；网络地址转换的概念、类型 The concept and function of ACL; Network address translation concepts, types		

难点: Focal points	扩展 ACL 的配置；NAT 的工作原理 Extending the ACL configuration; How NAT works

(2)实验教学 Experiments

注：可根据实际情况增减行数。实验类型可分为验证性、设计性、综合性，实验性质可分为选做、必做。

Note: Please add/reduce lines based on subject. The Type contains Verify, Design, and Comprehensive, while the Pattern contains Required and Elective

序号 No.	实验项目名称 Experiment Topic	学时 Hours	每组人数 MPG*	实验类型 Type	实验性质 Pattern
1	研究网络硬件设备 Study network hardware devices	4	1	验证性 Verify	必做 Elec
2	研究 ICMP 数据包 Study ICMP packets	2	1	验证性 Verify	必做 Elec
3	子网和路由器配置 Subnet and router configuration	2	1	设计性 Design	必做 Elec
4	管理路由器 Manage Router	2	1	综合性 Comp	必做 Elec
5	地址解析协议 (ARP) ARP	2	1	综合性 Comp	必做 Elec
6	研究第 2 层帧头 Study the Layer 2 frame head	4	1	综合性 Comp	必做 Elec
	总计 Total	16			

*MPG: Members per group

实验项目序号: Experiment No.	1	支撑教学目标: SLOs Supported	1-2，1-4
每组成员: Members per Group	1	指导教师: Tutor	管莹 Guan ying
实验名称: Experiment Title	研究网络硬件设备 Study network hardware devices		
实验内容: Content	交换机的基本配置 Basic configuration of the switch		
	路由器的基本配置方法 The basic configuration method of the router		
学习目标: Learning Objectives	以太网的各种组网技术，掌握交换式以太网的工作原理 All kinds of Ethernet networking technology, master the working principle of switched Ethernet		
教学要求: Requirements	独立完成实验 Complete the experiment independently		
实验场地:	计算机与通信工程学院实验中心		

Location	Experimental Center, School of Computer and Communication Engineering
实验软硬件设备: Software/Hardware	计算机专业课一体化平台 Computer professional course integration platform

实验项目序号: Experiment No.	2	支撑教学目标: SLOs Supported	1-2，1-4
每组成员: Members per Group	1	指导教师: Tutor	管莹 Guan ying
实验名称: Experiment Title	研究 ICMP 数据包 Study ICMP packets		
实验内容: Content	冲突域和广播域 Conflict domain and broadcast domain		
学习目标: Learning Objectives	掌握不同的网络设备的功能和特点 Functions and characteristics of different network devices		
教学要求: Requirements	独立完成实验 Complete the experiment independently		
实验场地: Location	计算机与通信工程学院实验中心 Experimental Center, School of Computer and Communication Engineering		
实验软硬件设备: Software/Hardware	计算机专业课一体化平台 Computer professional course integration platform		

实验项目序号: Experiment No.	3	支撑教学目标: SLOs Supported	1-2，1-3，1-4
每组成员: Members per Group	1	指导教师: Tutor	管莹 Guan ying
实验名称: Experiment Title	子网和路由器配置 Subnet and router configuration		
实验内容: Content	路由器的功能；路由器访问与控制；路由器配置；管理路由器的集中模式 The function of router; Router access and control; Router configuration; Manage the centralized mode of the router		
学习目标: Learning Objectives	路由器 IOS 和配置文件的备份和升级 Backup and upgrade router IOS and configuration files		
教学要求: Requirements	独立完成实验 Complete the experiment independently		
实验场地: Location	计算机与通信工程学院实验中心 Experimental Center, School of Computer and Communication Engineering		

实验软硬件设备: Software/Hardware	计算机专业课一体化平台 Computer professional course integration platform

实验项目序号: Experiment No.	4	支撑教学目标: SLOs Supported	1-2，1-3，1-4
每组成员: Members per Group	1	指导教师: Tutor	管莹 Guan ying
实验名称: Experiment Title	管理路由器 Manage Router		
实验内容: Content	RIP 路由协议的配置；OSPF 路由协议的配置；EIGRP 路由协议的配置 Configuration of RIP routing protocol; Configuration of OSPF routing protocol; Configuration of EIGRP routing protocols		
学习目标: Learning Objectives	RIP、OSPF 路由协议的基本概念和配置 Basic concepts and configurationofRIPandOSPF		
教学要求: Requirements	独立完成实验 Complete the experiment independently		
实验场地: Location	计算机与通信工程学院实验中心 Experimental Center, School of Computer and Communication Engineering		
实验软硬件设备: Software/Hardware	计算机专业课一体化平台 Computer professional course integration platform		

实验项目序号: Experiment No.	5	支撑教学目标: SLOs Supported	
每组成员: Members per Group	1	指导教师: Tutor	管莹 Guan ying
实验名称: Experiment Title	地址解析协议 (ARP) ARP		
实验内容: Content	ARP 的工作过程 The working process of ARP		
学习目标: Learning Objectives	以太网的各种组网技术，掌握交换式以太网的工作原理 All kinds of Ethernet networking technology, master the working principle of switched Ethernet		
教学要求: Requirements	独立完成实验 Complete the experiment independently		
实验场地: Location	计算机与通信工程学院实验中心 Experimental Center, School of Computer and Communication Engineering		

实验软硬件设备: Software/Hardware	计算机专业课一体化平台 Computer professional course integration platform

实验项目序号: Experiment No.	6	支撑教学目标: SLOs Supported	1-2，1-3，1-4
每组成员: Members per Group	1	指导教师: Tutor	管莹 Guan ying
实验名称: Experiment Title	研究第 2 层帧头 Study the Layer 2 frame head		
实验内容: Content	广域网的概念；HDLC 的概念和帧结构；点对点广域网协议 PPP 的概念和原理 Wide area network concept; HDLC concept and frame structure; The concept and principle of point-to-point wide area network protocol PPP		
学习目标: Learning Objectives	HDLC、PPP、帧中继的概念和基本配置 HDLC, PPP, frame relay concepts and basic configuration		
教学要求: Requirements	独立完成实验 Complete the experiment independently		
实验场地: Location	计算机与通信工程学院实验中心 Experimental Center, School of Computer and Communication Engineering		
实验软硬件设备: Software/Hardware	计算机专业课一体化平台 Computer professional course integration platform		

(3) 课外实践教学 PBL

PBL 项目序号: PBL No.	1	支撑教学目标: SLOs Supported	1-3，1-4，2-2
项目名称: PBL Title	基于 WordPress 的网站开发及应用 Website Developmentand Applicationbasedon WordPress		
每组成员: Members per Group	6	指导教师: Tutor	韩鹏
学时 Hours	10	成果物 Achievements	PBL 实验报告
项目内容: Content	安装 Linux 虚拟机及服务器程序 Installation of Linux virtual machine and server program		
	下载并运行 Apache/Mysql/PHP 程序，搭建完成 LAMP 环境		
	下载并安装、配置 WordPress 网站程序		
	实现具有一定功能的网站系统开发		

学习目标: Learning Objectives	熟悉 LAMP 环境的基本操作，掌握常用的 Linux 操作指令及 Mysql 语句，掌握现代动态网站系统的基本架构，熟悉课程所学基本概念，学会网站开发与基本调试 Master the basic operation of LAMP, frequently-used Linux and Mysql instructions, basic structure of moderndynamic websites, basic concept and abilities in website development and debug
教学要求: Requirements	使用 WordPress 搭建具有一定功能的网站系统，规范完成实验报告 Finish a website system with WordPress and finish the report
实践场地: Location	学生自主选择，可在实验室、PBL Studio 或其他地点 Labs, PBL Studio or so based on the students
实践软硬件设备: Software/Hardware	计算机，VM Ware 虚拟机软件，WordPress 程序包 PC, VM Ware, Wordpress Kit

PBL 项目序号: PBL No.	选择一项。	支撑教学目标: SLOs Supported	
项目名称: PBL Title			
每组成员: Members per Group		指导教师: Tutor	
项目内容: Content			
学习目标: Learning Objectives			
教学要求: Requirements			
实践场地: Location			
实践软硬件设备: Software/Hardware			

四、教学安排 TeachingSchedule

注：可根据实际情况增减行数

Note: Please add/reduce lines based on subject.

教学内容 Teaching Content	学时(周)Hour(Week)			
	理论 LECT.	实验 EXP.	课外实践 PBL	集中实践 PRAC.

计算机网络与因特网 Computer Networks and the Internet	4			
应用层 Application Layer	4			
运输层 Transport Layer	4			
网络层：数据视角 The Network Layer: Data Plane	4			
网络层：控制视角 The Network Layer: Control Plane	4			
链路层 The Link Layer	4			
现代计算机网络工具的使用 Application of Modern Computer Network Tools		2		
常用计算机网络指令的使用 Application of Computer Network Instructions		2		
基于 Packet Tracer 的虚拟局域网设计、仿真及调试 VLAN Design, Simulation and Debug based on Packet Tracer		2		
基于 Packet Tracer 的小型局域网络构建、调试及配置 Small LAN Construction, Debug and Configuration based on Packet Tracer		2		
基于 Packet Tracer 的典型场景网络设计、构建及配置 Design, Construction and Configuration of Typical Network Scenes based on Packet Tracer		4		
基于 WordPress 的网站开发及应用 Website Development and Application based on WordPress			10	
PBL 项目 2 PBL Project 2			10	
总计 Total	24	12	20	

五、教学方法 Teaching Methodology

注：可根据实际情况增减行数或修改内容

Note: Please add/reduce linesor revise content based on subject.

勾选 Check	教学方法与特色 Teaching Methodology & Characters
☑	多媒体教学：基于信息化设备的课堂教学 Multi-media-basedlecturing
☑	实践能力传授：理论与行业、实际案例相结合 Combining theory with industrial practical problems
☑	课程思政建设：知识讲授与德育相结合 Knowledgedeliverywithethiceducation
☑	PBL 教学：问题驱动的分组学习与交流

	Problem-basedlearning
□	其他:单击或点击此处输入文字。 Other:单击或点击此处输入文字。

六、成绩评定 Assessment

注：可根据实际情况增减行数或修改内容

Note: Please add/reduce linesor revise content based on subject.

考核环节: Assessment Content	平时 Behavior	环节负责人: Director	韩鹏
给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	20
考核方式: Measures	满分 100 分，使用学习通记录学生平时的课堂表现，每次考勤计 10 分，缺勤不得分，缺勤五次及以上取消考试资格。每次作业计 10 分，抄袭、给他人抄袭或未交作业不得分。每次课堂正确回答问题计 5 分，每次课堂注意力不集中、影响课堂纪律等情况扣 5 分。最后总分不超过 100 分，不低于 0 分。		

考核环节: Assessment Content	实验 Experiment	环节负责人: Director	张三
给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	30
考核方式: Measures	满分 100 分，实验成绩不及格（低于 60 分）不得参加期末考试。通过课堂表现及实验报告记录学生成绩，每次考勤计 10 分，缺勤不得分。前五次实验每次计 10 分，最后一次实验计 20 分。抄袭、给他人抄袭或未交实验报告不得分。最后总分不超过 100 分，不低于 0 分。		

考核环节: Assessment Content	期中 Mid-term	环节负责人: Director	韩鹏
给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	10
考核方式: Measures	满分 100 分，通过 PBL 实验报告记录学生成绩，每次满分 50 分，按照学生的报告完成情况和贡献程度酌情给分，抄袭、给他人抄袭或未交实验报告不得分。		

考核环节: Assessment Content	期末 Final	环节负责人: Director	韩鹏
给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	40

考核方式: Measures	满分 100 分，通过批阅期末考试试卷给出学生成绩。

七、改进机制 Improvement Mechanism

注：未尽事宜以教学团队以及学院教学指导委员会商定为准。

Note: Matters not covered in this file shall be determined by TAB of SSTC, NEU.

教学大纲改进机制 Subject Syllabus Improvement Mechanism			
考核周期(年): Check Period (YR)	4	修订周期(年): Revise Period (YR)	4
改进措施: Measures	课程负责人根据课程教学内容与人才培养目标组织课程团队讨论并修改教学大纲，报分管教学工作副院长审核后由执行院长批准。 The subject coordinator shall be responsible for the syllabus discussion and improvement, and the revised version shall be submitted to deputy dean (teaching affairs) for reviewing then to executive dean for approvement.		
成绩评定改进机制 Assessment Improvement Mechanism			
考核周期(年): Check Period (YR)	1	修订周期(年): Revise Period (YR)	1
改进措施: Measures	课程负责人根据课程教学内容、课堂教学效果以及成绩分布，对课程教学方法和成绩评定环节进行改进，并同步优化评定办法。 The subject coordinator shall revise the syllabus based on the teaching content, effect and result distribution while optimize the assessment measures.		