【计算机文化】

【New Perspectives on Computer Concepts】

一、基本信息 Basic Information（必填项）

课程代码 **Course Code**：【2150006】

课程学分 **Course Credits**：【3】

面向专业 **Major**：【数媒体技术（双语）Bachelor in Digital Media Technology】

课程性质 **Characteristic of the Course**：【系级必修课 Department-level required courses】

开课院系 **Department**：**国际教育学院/College of International Education**

使用教材 **Teaching and Reference Materials**：

教材 Textbook

【计算机文化，（美）琼·詹姆里奇·帕森斯，机械工业出版社，英文版第 20 版】

【New Perspectives on Computer Concepts, (USA) June Jamrich Parsons, Mechanical Industry Press, English Edition 20th Edition】

参考书目 Bibliography

【New Perspectives on Computer Concepts, Introductory June Jamrich Parsons, Cengage Learning, 2018】

课程网站网址 **Online Learning Website URL**：

https://mooc1.chaoxing.com/course-ans/courseportal/228483446.html

先修课程 **Preface Course**：【无 None】

二、课程简介 Course Description（必填项）

This module is designed to develop key understanding and updates on emerging technologies and their effects on computing	
Learning Outcome The learner will	**Assessment Criteria**: The learner can:
1. Be able to discuss latest developments in technology	1.1. Display knowledge of apps and their evolution 1.2. Discuss how these technologies are affecting daily life and consumer behaviours

	1.3. Identify how changing technology is changing daily life
2. Be able to demonstrate an understanding of changing digital devices	2.1. Identify the changes in digital devices and the ways their functionality is developing 2.2. Discuss the role social media plays in digital technology 2.3. Evaluate advantages and disadvantages of the changes in digital devices in everyday life
3. Be able to analyse how changing technology is changing business	3.1. Identify and discuss different strategies for corporate digital presence 3.2. Assess the different ways people interact with businesses digitally 3.3. Evaluate the ways businesses better with technology are changing business practice
4. Be able to assess the possibilities of future technology developments	4.1. Evaluate the developments in augmented reality, connectivity and virtual reality 4.2. Discuss the potential of these for business 4.3. Identify the potential future impact digital devices on business

三、选课建议 Suggestion for Selection of Course（必填项）

本课程为计算机领域的专业通识课程，任何专业、年级的学生均可根据自身兴趣和需求选修。

This course is a professional general course in the computer field. Students of any major and grade can take elective courses according to their own interests and needs.

四、课程与专业毕业要求的关联性 The Correlation between Curriculum and Graduation Requirements（必填项）

专业毕业要求 **Graduation Requirements**	关联 Relation
LO11 表达沟通	

Expressing communication 理解他人的观点，尊重他人的价值观，能在不同场合用书面或口头形式进行有效沟通。 Understand the views of others, respect their values, and communicate effectively in writing or orally on different occasions	
LO21 自主学习 Self-learning 能根据需要确定学习目标，并通过搜集信息，分析信息，讨论，实践，质疑，创造等方法来实现学习目标。 Be able tOidentify learning goals as needed and achieve them by gathering information, analyzing information, discussing, practicing, questioning,	●
LO3 专业能力 Professional ability	
LO31：工程素养：掌握数学、自然科学知识，具有工程意识，能结合计算机、 数字媒体技术相关专业知识解决复杂工程问题。 LO31：Engineering literacy: master mathematics and natural science knowledge, have engineering awareness, and be able to combine computer Professional knowledge of digital media technology to solve complex engineering problems.	●
LO32：软件开发：掌握主流设计技术、程序设计思维以及相关数据库技术，具备建设可运行于多种终端网站的能力。 LO32：Software development: master the mainstream design technology, programming thinking and related database technology, and have the ability to build a variety of terminal websites.	
LO33：系统运维：系统地掌握计算机硬件、软件的基本理论、基本知识，具备保障系统运行与维护基本技能。 LO33：System maintenance: systematically master the basic theory and knowledge of computer hardware and software, and have the basic skills to ensure system operation and maintenance.	
LO34：素材采集与处理：掌握数字媒体的基本理论、主流数字媒体应用软件使用技	

术，具备素材的采集、存储、处理以及传输的能力。 LO34:Material collection and processing: master the basic theory of digital media and the use technology of mainstream digital media application software, and have the ability of material collection, storage, processing and transmission.	
LO35：虚拟现实设计与制作：熟悉虚拟现实基本原理，掌握虚拟现实产品设计与制作流程及主流的设计、集成平台，具备结合相关硬件实现虚拟现实产品的内容制作和应用开发的能力。 LO35:Virtual reality design and production: be familiar with the basic principles of virtual reality, master the design and production process of virtual reality products and the mainstream design and integration platform, and have the ability to realize the content production and application development of virtual reality products combined with relevant hardware.	
LO41 尽责抗压 Due diligence and pressure resistance 遵守纪律，守信守则，具有耐挫折，抗压力的能力。 Discipline, abide by the rules, with resistance to setbacks, the ability to resist pressure.	
LO51 协同创新 Collaborative innovation 同团队保持良好的合作关系，做集团中的积极成员；勇于从不同的角度思考问题，勇于提出新设想。 Keep good cooperation with the team, be an active member of the group, be brave to think from different perspectives and put forward new ideas.	
LO61 信息应用 Information application 能在学习，工作中应用信息技术解决问题，具有运用计算机处理工作领域中的信息和技术交流的能力。 Can apply information technology tOsolve problems in study and work, and have the ability tOuse computers tOprocess information and technology exchanges in the field of work.	

LO71 服务关爱 Service care 愿意服务他人，服务企业，服务社会；为人热忱，富于爱心，痛得感恩（感恩， 回报， 爱心为我校校训内容之一） Willing to serve others, enterprises and society; being enthusiastic, loving and grateful (gratitude, return, love is one of the contents of our school motto)	
LO81 国际视野 International Perspective 具有基本的外语表达沟通能力与跨文化理解能力，能够阅读专业外文资料，有国际竞争与合作意识。 With basic foreign language communication skills and cross-cultural understanding ability, able to read professional foreign language materials, with international competition and cooperation awareness.	

备注：LO=learning outcomes（学习成果）

五、课程目标/课程预期学习成果 Course Objectives / Course Expected Learning Outcomes（必填项）（预期学习成果要可测量/能够证明）

序号 No.	课程预期 学习成果 Course Expected Learning Outcomes	课程目标 （细化的预期学习成果） Course Objectives （Detailed Expected Learning Outcomes）	教与学方式 Teaching and Learning Methods	评价方式 Assessment Methods
1	LO211	1. 能够讨论最新技术发展，数字设备的更新。 Be able to discuss latest developments in technology and changing digital devices. 2. 能够分析技术更新对商业产生的影响，并评估新兴技术发展的可能性。 Be able to analyze how	Lecture and Discussion and Individual Presentation 授课与讨论及个人演示	Multiple Questions, Quiz, Case Study, and Team Work 各类问题，章节测验，案例学习，和团队项目

		changing technology is changing business and assess the possibilities of future technology developments.		
2	LO31	1. 应用不同的社交网络和媒体，有效传递有价值的信息。评估不同类型的在线交流服务。识别社交媒体的价值。 Apply different social networks and media to effectively deliver valuable information. Evaluate different types of online communication services. Identify and value social media. 2.理解不同的软件系统，及应用和生产率软件。识别系统设计和分析的各个阶段。应用数据库工具及完成基本的 SQL 编程。 Understand different software systems, applications and productivity software. Identify each stage of system design and analysis. Apply database tools and complete basic SQL programming.	Lecture and Discussion and Individual Presentation 授课与讨论及个人演示	Multiple Questions, Quiz, Case Study, and Team Work 各类问题，章节测验，案例学习，和团队项目

六、课程内容 Course Contents（必填项）

第一章 数字内容 A 部分 和 第二章 数字设备 A 部分 Module 1 Digital Content Section A & Module 2 Digital Devices Section A

理论课时 **2** **Theoretical class hour 2**

知识要求 Knowledge requirements

① 理解二进制系统，数据存储单位，有损压缩和无损压缩，典型设备组件和形状因子。

Understand binary systems, data storage units, lossy and lossless compression, typical equipment components and shape factors.

② 运用 ASCII 码进行文本解密，在主板上识别微处理器及其性能，说明如何维护触摸屏和提高电池寿命。

Using ASCII code for text decryption, identify the microprocessor and its performance on the motherboard, and explain how to maintain the touch screen and high battery life.

能力要求 Capability requirements

① 识别微处理器，具有翻盖或直板形状因子的典型设备组件。

Identify microprocessors, typical equipment components with flip or straight plate shape factors.

② 区分有损压缩和无损压缩，OCR 和 Image Scanner.

Distinguish lossy compression from lossless compression, OCR and image scanner.

教学难点 Teaching difficulties

① 计算机数位系统与数据存储单位。

Computer digital system and data storage unit.

② 计算机编码方式和编解码。

Computer coding method and encoding and decoding.

③ 计算机设备组件和性能。

Computer equipment components and performance.

第二章 数字设备 B、C 部分 Module 2 Digital Devices Section B-C

理论课时 2　Theoretical class hour 2

知识要求 Knowledge requirements

① 了解企业级计算机的三种类型和个人计算机分类，支持手机语言和短信的设备，微处理器指令集的重要性。

Understand the three types of enterprise computers and the classification of personal computers, the devices supporting cellular voice and SMS, and the importance of microprocessor instruction set.

② 分析处理指令时，如何通过 RAM、控制单元和 ALU 追踪指令。

Analyze how to track instructions through ram, control unit and ALU as processing

instructions.

能力要求 Capability requirements

① 能够根据性能需要，选择正确配置的数字设备。

Be able to select the correctly configured digital equipment according to the performance needs.

教学难点 Teaching difficulties

① 微处理器指令集的重要性和 x86 和 ARM 标准的差异。

The importance of microprocessor instruction set and the differences between x86 and arm standards.

② 微处理器处理指令过程。

The process of processing instructions by a microprocessor.

③ 计算机启动过程中的步骤及影响微处理器性能的因素。

Steps in computer startup and factors affecting microprocessor performance.

第二章 数字设备 D-E 部分 Module 2 Digital Devices Section D-E

理论课时 2   Theoretical class hour 2

知识要求 Knowledge requirements

① 知道存储选项的标准、三种类型的光存储介质、四个常见的备份对、Windows 用户可用的备份工具、三个不可使用蓝牙连接的设备、影响显示质量的四个因素、五种为自动驾驶车辆提供输入的五种传感器。

Know the standard of storage options, three types of optical storage media, four common backup pairs, backup tools available to Windows users, three devices that cannot use Bluetooth connection, four factors affecting display quality, and five sensors that provide input for autonomous vehicles.

② 理解存储器和内存之间的关系、数字设备的存储规范、磁存储技术的优缺点、硬盘驱动器故障后恢复的过程、GPU 的作用、分辨率设置如何影响屏幕上的对象和文本的大小。

Understand the relationship between storage and memory, the storage specifications of digital devices, the advantages and disadvantages of magnetic storage technology, the recovery process after hard disk drive failure, the role of GPU, and how the resolution setting affects the size of objects and text on the screen.

能力要求 Capability requirements

① 识别常见的扩展端口和连接器，如 USB、VGA、HDMI、DVI、DisplayPort、雷电接口和以太网。

Identify common expansion ports and connectors, such as USB, VGA, HDMI, DVI, DisplayPort, Thunderbolt and Ethernet.

② 评估各种项目的存储策略。

Evaluate storage strategies for various projects.

教学难点 Teaching difficulties

① 存储器和内存之间的关系。

The relationship between storage and memory.

② 数字设备的存储规范。

Storage specification for digital devices.

③ 各种存储方式的有缺点。

Various storage methods have disadvantages.

④ 计算机内外信息传输路径。

Information transmission path inside and outside the computer.

⑤ 分辨率设置与屏幕上对象和文本大小的关系。

The relationship between the resolution setting and the size of objects and text on the screen.

第四章 万维网 A-B 部分 Module 4 The Web Section A-B

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道万维网的四项基本技术、四种流行的浏览器。

Know the four basic technologies and four popular browsers of the world wide web.

② 理解浏览器层次结构、URL 的规则、默认浏览器和浏览器主页之间的差异、预测服务的目的、浏览器扩展和插件的区别。

Understand browser hierarchy, rules of URL, differences between default browser and browser home page, purpose of prediction service, differences between browser extensions and plug-ins.

能力要求 Capability requirements

① 识别浏览器窗口的以下元素：地址框、刷新和主页按钮、后退和前进按钮、选项卡和设置菜单。

Identify the following elements of a browser window: address box, refresh and home buttons, back and forward buttons, tabs, and settings menu.

② 评估双向超文本链接在改善用户在线搜索体验上的作用。

Evaluate the role of two-way hypertext links in improving users' online search experience.

③ 评测允许浏览器存储密码所带来的潜在问题和风险。

Profile the potential problems and risks posed by allowing browsers to store passwords.

教学难点 Teaching difficulties

① 单向与双向超文本链接。

Unidirectional and bidirectional hypertext links.

② URL 的结构和使用规则。

Structure of URL and rules of utility.

③ 浏览器缓存和允许浏览器存储密码对隐私带来的潜在问题。

Browser cache and the potential problem with allowing browser to store passwords.

第四章 万维网 C-D 部分 Module 4 The Web Section C-D

理论课时 2   Theoretical class hour 2

知识要求 Knowledge requirements

① 知道 HTML 和类似的标记语言、用于创建网页的四种工具。

Know HTML and similar markup languages and four tools for creating web pages.

② 理解 HTML 文档和网页之间的关系、CSS 的用途、内联 CSS 与内部和外部 CSS、静态网页和动态网页之间的区别、Web 托管服务的用途、公开密钥加密系统。

Understand the relationship between HTML documents and web pages, the purpose of CSS, the difference between inline CSS and internal and external CSS, static web pages and dynamic web pages, the purpose of web hosting services, and public key encryption system.

能力要求 Capability requirements

① 识别 HTML 标记并说明其特征、完成请求和请求不存在的 HTTP 状态代码、浏览器何时显示安全站点，在该站点上可以安全地输入密码、财务信息和其他个人数据。

Identify HTML tags and explain their characteristics, complete the request and HTTP status code where the request does not exist, when the browser displays a secure site where passwords, financial information and other personal data can be safely entered.

② 正确使用浏览器请求方法。

Use the browser request method correctly.

③ 评测会话 cookies 和持久 cookies 对于用户个人隐私所带来的风险。

Evaluate the risks of session cookies and persistent cookies to users' personal privacy.

教学难点 Teaching difficulties

① HTML 标记语言系统和 CSS。

HTML markup language system and CSS.

② 网站创建和托管。

Site creation and hosting.

3. Cookie 和 HTTP 无状态协议之间的关系。

The relationship between cookies and HTTP's stateless protocol.

第四章 万维网 E 部分 Module 4 The Web Section E

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道流行的搜索引擎网站、搜索引擎的四个组件。

Know the popular search engine website and the four components of search engine.

② 理解网络爬虫的工作原理、缓存页面和实时页面的差别、搜索引擎索引器的工作原理、搜索历史对隐私的重要性、搜索历史记录和浏览器历史记录的区别。

Understand the working principle of web crawler, the difference between cached pages and real-time pages, the working principle of search engine indexer, the importance of search history to privacy, and the difference between search history and browser history.

能力要求 Capability requirements

① 运用搜索运算符提高查询效率。

Use search operators to improve query efficiency.

② 使用公允使用的一般准则评估搜索资料的在研究工作中的适用性。

Use the general criteria of fair use to evaluate the applicability of the search data in the research work.

教学难点 Teaching difficulties

① 搜索引擎的工作原理。

How search engines work.

② 公允使用的一般准则。

General guideline of fair use.

第五章 社交媒体 A-B 部分 Module 5 Social Media Section A-B

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道社交网络、地理社交网络、内容社区和在线通信，社交媒体档案的三要素、可用于定位移动和固定设备的四种技术、四种类型的知识产权、共享许可证的六项权利、合理使用的四个因素。

Know the three elements of social network, geographic social network, content community and online communication, social media archives, four technologies that can be used to locate mobile and fixed devices, four types of intellectual property rights, six rights of shared license, and four factors of rational use.

② 理解众包、从邻接矩阵得出的推论、病毒媒体、内容存储的位置以及对隐私的影响、大多数内容社区的财务模式。

Understand crowdsourcing, inference from adjacency matrix, viral media, location of content storage and impact on privacy, and financial model of most content communities.

能力要求 Capability requirements

① 使用社交媒体蜂巢分析各种社交媒体。

Use the social media hive to analyze various social media.

② 运用六度分离分析社交网络。

Use six degree separation to analyze social networks.

教学难点 Teaching difficulties

① 使用社交媒体蜂巢和六度分离分析社交媒体。

Social media was analyzed using social media hive and six degree separation.

② 知识产权、知识共享许可证、版权。

Intellectual property, knowledge sharing license, copyright.

第五章 社交媒体 C-D 部分 Module 5 Social Media Section C-D

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道博客页面的结构、五个有助于评估博客信息质量的问题、Twitter 页面的主要元素、有助于降低在公用计算机上访问电子邮件的安全风险的四个步骤、VoIP 技术的四种服

务。

Know the structure of blog page, five problems that help to evaluate the quality of blog information, the main elements of Twitter page, four steps that help to reduce the security risk of accessing e-mail on public computers, and four services of VoIP technology.

② 理解 RSS 阅读器和博客聚合器、Wiki 的特征、维基百科文章的编写和编辑、维基百科中 NPOV、NOR 和 V 的含义、"存储和转发"与电子邮件的关系。

Understand RSS readers and blog aggregators, Wiki features, Wikipedia article writing and editing, the meaning of NPOV, nor and V in Wikipedia, and the relationship between "store and forward" and e-mail.

能力要求 Capability requirements

① 运用通信技术的分类法。

Using the classification of communication technology.

教学难点 Teaching difficulties

① 博客、Twitter 和维基百科。

Blog, Twitter, and Wikipedia.

② IMAP/POP 和 VoIP。

IMAP/POP and VoIP.

第五章 社交媒体 E 部分 Module 5 Social Media Section E

理论课时 2　　Theoretical class hour 2

知识要求 Knowledge requirements

① 知道构成联机标识的元素、木偶用于欺骗的四种方式、使用在线笔名的三种情况、五种可能破坏网络声誉的因素、五种声誉管理做法、社交媒体数据类型。

Know the elements that make up the online identity, the four ways puppets are used to cheat, the three cases of using online pseudonyms, five factors that may damage the network reputation, five reputation management practices, and social media data types.

② 理解为什么应该避免使用通用配置文件映像、在线身份和在线声誉、模仿者和翻拍者、在线状态如何对个人隐私构成威胁。

Understand why you should avoid using common profile images, online identity and online reputation, impersonator and doppelganger, and how online status poses a threat to personal privacy.

能力要求 Capability requirements

① 分析使用第三方社交媒体用于程序的潜在问题。

Analyze potential problems using third-party social media for applications.

教学难点 Teaching difficulties

① 在线身份和在线声誉。

Online identify and online reputation.

第六章 软件 A-B 部分 Module 5 Software Section A-B

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道软件类别、流行的开源软件许可证、四类操作系统、操作系统管理的数字设备资源。

Know software categories, popular open-source software licenses, four types of operating systems, and digital device resources managed by the operating system.

② 理解软件更新与升级、软件许可证、操作系统内核的用途、多任务、多处理和多线程，由操作系统管理的缓冲区、操作系统的优缺点。

Understand software update and upgrade, software license, purpose of operating system kernel, multitasking, multiprocessing and multithreading, buffer managed by operating system, advantages and disadvantages of operating system.

能力要求 Capability requirements

① 使用常用软件定价模型测评软件并预测软件定价模式的发展趋势。

Use common software pricing models to evaluate software and predict the development trend of software pricing model.

② 使用虚拟机测评各种操作系统的优缺点。

Use virtual machines to evaluate the advantages and disadvantages of various operating systems.

教学难点 Teaching difficulties

① 操作系统的内核和管理系统。

Operating System kernel and administration system.

② 虚拟机与操作系统。

Virtual machine and operating systems.

第六章 软件 C-D 部分 Module 5 Software Section C-D

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道网络应用程序的优缺点、office 条件核心、数据库表中字段和记录的差异。

Know the advantages and disadvantages of network applications, the core conditions of office, and the differences between fields and records in database tables.

② 理解网络应用程序和移动应用程序的差异、越狱、PC 软件安装过程、Mac 软件安装过程与卸载。

Understand the differences between network applications and mobile applications, prison break, PC software installation process, mac software installation process and uninstall.

能力要求 Capability requirements

① 使用假设分析提高工作效率。

Use what-if analysis to improve work efficiency.

② 使用数字运算符和单元引用的电子表各公式提高工作效率。

Use numeric operators and spreadsheet formulas referenced by cells to improve work efficiency.

教学难点 Teaching difficulties

① 网络应用程序和移动应用程序的差异和优缺点。

Differences, advantages and disadvantages between web applications and mobile applications.

② 在 PC 上和 Mac 上安装与卸载软件的差异。

Differences between installing and uninstalling software on PCs and Macs.

③ 通过办公套件提高文字处理、表格数据管理、及信息传递效率。

Improve the efficiency of word processing, form data management and information transmission through office suite.

第六章 软件 E 部分 Module 5 Software Section E

理论课时 2   Theoretical class hour 2

知识要求 Knowledge requirements

① 知道五种文件命名约定、 数字设备上完整的文件路径、Windows 文件资源管理器和 MacOS Finder 的基本元素。

Know five file naming conventions, complete file paths on digital devices, basic elements of windows file explorer and MacOS finder.

② 理解在 PC 上的存储设备如何用设备字幕命名或制定、物理存储模型和逻辑存储模型之间的差异、操作系统使用索引文件的原因。

Understand how the storage device on the PC is named or formulated with device subtitles, the difference between physical storage model and logical storage model, and the reason why the operating system uses index files.

能力要求 Capability requirements

① 评测硬盘分区的合格性和文件管理的效率。

Evaluate the qualification of hard disk partition and the efficiency of file management.

教学难点 Teaching difficulties

① 物理存储模型和逻辑存储模型之间的差异。

The difference between physical storage model and logical storage model.

② 操作系统管理文件的过程和基于应用程序的文件管理。

The process of operating system file management and application-based file management.

第七章 数字安全 C & E 部分 Module 5 Digital Security Section C & E

理论课时 2   Theoretical class hour 2

知识要求 Knowledge requirements

③ 知道网络入侵的不同种类 - RATs、远程连接、勒索软件、机器人网络等,。

Know RATs, remote utilities, ransomware, and botnets are the most common types of online intrusions.

④ 理解防火墙、防入侵软件以及杀毒软件的不同及使用环境，了解黑名单和白名单，理解为什么路由器可以看作一种个人防火墙。

Understand the differences and operation environments of firewall, anti-exploit software and anti-virus software. Know blacklist and whitelist; understand why router can be seen as a personal firewall.

能力要求 Capability requirements

③ 使用 netstat 命令查询 PC 上开发的端口，及使用该端口的进程。

Use netstat in command line and list open ports on a PC, also list the process ids that use each port.

④ 使用垃圾邮件过滤器过滤指定种类的垃圾邮件。

Use spam filter provided by email service provider to filter out specific types of spam.

教学难点 Teaching difficulties

③ 掌握 netstat 命令的各种带参数使用方式。

Handle different parameters when using netstat command, and their functionalities.

④ 不同种类(普通、DNS、HOST)的 Pharming 的辨析。

Tell the difference between normal Pharming, DNS Pharming and HOST Pharming.

第八章 信息系统 A-B 部分 Module 5 Information System Section A-B

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道垂直和水平市场，问题的分类，交易处理系统、管理信息系统、决策支持系统和专家系统，电子商务类型。

Know the vertical and horizontal markets, the classification of problems, transaction processing systems, management information systems, decision support systems and expert systems, and the types of e-commerce.

② 理解一个组织、它的使命和它的信息系统之间的关系，专家系统如何使用模糊逻辑，准时制库存与供应链管理的关系，忠诚度计划与 CRM 的关系，ERP 系统的优点。

Understand the relationship between an organization, its mission and its information system, how expert system uses fuzzy logic, the relationship between just in time inventory and supply chain management, the relationship between loyalty program and CRM, and the advantages of ERP system.

能力要求 Capability requirements

① 根据组织架构图将员工与战略、战术、运营规划需求进行匹配。

Match employees with strategic, tactical and operational planning according to the organization chart.

教学难点 Teaching difficulties

① 组织结构与战略、战术、运营规划。

Organization structure and strategic, tactical, operational planning.

② 不同的信息系统类型和优缺点。

Pros and cons of each information system.

第八章 信息系统 C-D 部分 Module 5 Information System Section C-D

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道 SDLC 的五个阶段，可用于系统分析的工具，设计团队可以用的四类解决方案。

Know the five stages of SDLC, the tools that can be used for system analysis, and the four

types of solutions that can be used by the design team.

② 理解计划阶段进行的任务，分析阶段进行的活动，系统开发设计阶段进行的活动，特征蠕变，实际阶段进行的活动和测试类型。

Understand the tasks carried out in the planning stage, the activities carried out in the analysis stage, the activities carried out in the system development and design stage, the characteristics of creep, the activities carried out in the actual stage and the types of tests.

能力要求 Capability requirements

① 使用波特五力模型和 PIECES 对问题和机会进行分类。

Problems and opportunities are classified using Porter's five forces model and PIECIES.

② 使用 QoS 指标对系统开发设计及后续维护进行测评。

The QoS index is used to evaluate the system development, design and subsequent

maintenance.

教学难点 Teaching difficulties

① 系统开发流程。

System development process.

第九章 数据库 A-B 部分 Module 5 Database Section A-B

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道与操作数据库相关的活动，DBMS，对数据库管理非常重要的安全措施。

Knowing the activities related to operating the database, DBMS, is a very important security measure for database management.

② 理解操作数据库和分析数据库的区别，ERD 和一对一、一对多和多对多关系，可序列化性的概念与数据库的关系。

Understand the differences between operational database and analytical database, ERD and one-to-one, one to many and many to many relationships, and the relationship between the concept of serializability and database.

能力要求 Capability requirements

① 使用 ERD 进行数据库设计。

Use ERD for database design.

教学难点 Teaching difficulties

① ERD 和一对一，一对多和多对多关系。

ERD and one-to-one, one to many and many to many relationships.

第九章 数据库 C-D 部分 Module 5 Database Section C-D

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道常见的数据输入错误以及数据库设计人员用来减少错误数量的策略，数据库中常见数据类型。

Know the common data input errors and the strategies used by database designers to reduce the number of errors, and the common data types in the database.

② 理解规范化数据库的原因和方法，排序和索引的区别，设计数据库接口的最佳原则，报告模板的用途，SQL 注入如何工作。

Understand the reasons and methods of standardizing the database, the differences between sorting and indexing, the best principles for designing the database interface, the purpose of the report template, and how SQL injection works.

③ 计算字段节省存储空间。

Calculating fields saves storage space.

能力要求 Capability requirements

① 使用 SQL 建立数据库，更新数据库。

Use SQL to establish the database and update the database.

教学难点 Teaching difficulties

① 数据库规范化和接口设计最佳原则。

The best principles of database standardization and interface design.

② SQL 语言规范。

SQL language specification.

第九章 数据库 E 部分 Module 5 Database Section E

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道第三代计算平台的元素，5Vs，NoSQL。

Know the elements of the third generation computing platform, 5vs and NoSQL.

② 理解大数据的数据集，放大与缩小之间的区别，动态扩展的工作原理，Hadoop 和 MapReduce。

Understand the data set of big data, the difference between scaling in and scaling out, the working principle of dynamic expansion, Hadoop and MapReduce.

③ 描述并绘制关键值数据模型的示例。

Describe and draw examples of key value data models.

能力要求 Capability requirements

① 评测存储在关系数据库中的数据和存储在面向列的数据库中的数据的不同检索策略。

Evaluate different retrieval strategies for data stored in relational database and data stored in column- oriented database.

教学难点 Teaching difficulties

① 非关系数据库。

Non-relational database.

② 动态扩展。

Dynamic scaling.

③ 存储在关系数据库中的数据和存储在面向列的数据库中的数据的不同检索策略。

Different retrieval strategies for data stored in relational database and data stored in column- oriented database.

第十章 编程 A-B 部分 Module 5 Programming Section A-B

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道编程方法类型，程序测试期间可能遇到的三种类型的错误，低级语言和高级语言，三种传统编程语言。

Know the type of programming method, three types of errors that may be encountered during program testing, low-level language and high-level language, and three traditional programming languages.

② 理解编程和软件工程的区别，问题陈述的三个核心要素，常量与变量，形式化方法的意义，STRIDE 和 DREAD 的目的，防御性编程的重要性，抽象概念如何应用于编程语言。

Understand the difference between programming and software engineering, the three core elements of problem statement, constants and variables, the significance of formal methods, the purpose of STRIDE and DREAD, the importance of defensive programming, and how abstract concepts are applied to programming languages.

能力要求 Capability requirements

① 运用抽象概念和形式化方法进行程序设计。

Abstract concepts and formal methods are used for programming.

教学难点 Teaching difficulties

① 预测方法论和敏捷方法论。

Predictive methodology and agile methodology.

第十章 编程 C-D 部分 Module 5 Programming Section C-D

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 知道用于表达算法的三种工具。

Know three tools for expressing algorithms.

② 理解算法与编程的关系，选择控制结构、重复控制结构如何控制程序流，程序范式的优缺点，在面向对象范式中对象和类的重要性，继承，面向对象程序中方法和消息之间的关系，多态性，封装与抽象的关系。

Understand the relationship between algorithm and programming, select control structure and repetitive control structure, how to control program flow, the advantages and disadvantages of program paradigm, the importance of objects and classes in object-oriented paradigm, inheritance, the relationship between methods and messages in object-oriented program, polymorphism, and the relationship between encapsulation and abstraction.

能力要求 Capability requirements

① 使用过程编程范式和面向对象范式编写程序。

Write programs using process programming paradigm and object-oriented paradigm.

教学难点 Teaching difficulties

① 函数、选择控制结构及重复控制结构对程序流的影响。

The influence of function, selection control structure and repetitive control structure on program flow.

② 继承和封装。

Inheritance and encapsulation.

第十章 编程 E 部分 Module 5 Programming Section E

理论课时 2 Theoretical class hour 2

知识要求 Knowledge requirements

① 理解说明性范式与过程性范式和面向对象范式的区别，Prolog 事实和 Prolog 规则的区别，

Prolog 如何使用目标。

Understand the difference between declarative paradigm and procedural paradigm and object-oriented paradigm, the difference between Prolog facts and Prolog rules, and how Prolog uses goals.

能力要求 Capability requirements

① 使用 Prolog 编程。

Write programs using declarative paradigm.

教学难点 Teaching difficulties

① 说明性范式逻辑。

Declarative paradigm logic.

七、评价方式与成绩 Assessment Index & Weightage

总评构成（1+X） **Grading Computation**	评价方式 **Assessment Index**	占比（%) **Weightage（%）**
1	期末考核：个人项目报告（2000 words） Final Personal Report（2000 words）	50%
X1	过程考核：个人作业（800 words） Personal Work（800 words）	20%
X2	过程考核：小组团队作业（1200 words） Team Work（1200 words）	20%
X3	过程考核：课堂表现 Class Performance	10%

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审核时间：2021.9.8

Date