数据库原理 教学大纲

Principles of Database Subject Syllabus

一、课程信息 Subject Information

课程编号:	2100212007	开课学期:	,
Subject ID	3100213006	Semester	4
课程分类:	去业教育 DA	所属课群:	专业基础 MF
Category	专业教育 PA	Section	文业垄址 MIF
课程学分:	3	总学时/周:	48/4
Credit Points	3	Total Hours/Weeks	40/4
理论学时:	40	实验学时:	8
LECT. Hours	40	EXP. Hours	ŏ
PBL 学时:	0	实践学时/周:	0
PBL Hours	V	PRAC. Hours/Weeks	U
	东北大学		
	悉尼智能科技学院		
开课学院:	Sydney Smart	适用专业:	计算机科学与技术
College	Technology College	Stream	CST
	Northeastern		
	University		
课程属性:	必修 Compulsory	课程模式:	互认 EQV
Pattern		Mode	±,,, 56,
中方课程协调人:	敬茂华	成绩记载方式:	百分制 Marks
NEU Coordinator	JingMaohua	Result Type	H 74 1/4 -1-202-22
先修课程:		放数学 Discrete Mathema	ntics
Requisites	, 71		
英文参考教材:	Silberschatz B A	,Korth H F , Sudarshar	n S . Database System
EN Textbooks	Concepts (7th Edition). McGraw-Hill.		
由文会之数社	王珊,萨师煊.(2014)	数据库系统概论(第5	版).
中文参考教材: CN Textbooks	Wang Shan, Sa Shix	uan. (2014). Database	System Concepts (5th
CN Textbooks	Edition).Higher Educat	ion.	
教学资源:	•	0 /1 / 1	
Resources	https://www.microsoft.com/zh-cn/sql-server/sql-server-20		
	#### # # # # # # # # # # # # # # # # #		
课程负责人(撰写人):	敬茂华	提交日期:	单击或点击此处输
Subject Director	JingMaohua	Submitted Date	入日期。
任课教师(含负责人):		敬茂华, 李佳音	談我等
Taught by		Jing Maohua, Li Jiayin	1 . (
审核人:	韩鹏	批准人: Approved by	史闻博
Checked by		11	的 由 生 武 占 土 山 い は た
		批准日期: Approved Date	单击或点击此处输 入日期。
		Approved Date	八口别。

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.

Note: GA and index can be refer	rred from u	ndergraduate program in SSTC website. Please add/reduce lines based on subject.
整体目标: Overall Objective	本课程 际的应用 改,针 辑结构 要性和 This s	l向学生介绍数据库系统的基本概念。学生们将学习如何在实现用系统中有效地构建、存储、组织和管理数据,以方便用户间。同时还学习如何使用 SQL 语言进行有效的数据检索和更对具体的应用需求进行需求分析,数据库概念结构设计和逻划设计。本课程教导学生认识到良好的数据库设计和管理的重划挑战,这是功能性软件应用程序开发的基础。ubject introduces students to the fundamentals of effective se systems. Students are taught how data is structured and ed in an organization in a way that can be used effectively by
	applica effectiv applica implen design.	tions and users. They also learn to use the language SQL for we data retrieval and modification, according to the specification requirements, learn how to study the requirement analysis, nenting database conceptual structure design and logical structure. This subject teaches students to appreciate the significance and ages of good database design and management, which underping relopment of functional software applications.
	1-1	培养学生理解与结构化数据的设计和使用相关的主要问题; 具有应用数据库设计原则构建概念模型和逻辑数据模型的 抽象设计能力;评估数据冗余级别及其对数据库完整性和可 维护性的影响。 Explain the main issues related to the design and use of structured data; Construct conceptual and logical data models applying database design principles; Evaluate data redundancy levels and their impact on database integrity and maintainability;
(1)专业目标: Professional Ability	1-2	应用数据建模原理构建概念数据模型; 遵循数据规范化原则构建逻辑数据模型; 区分好的和坏的数据库设计。 Construct conceptual data models applying data modelling principles; Construct logical data models adhering to data normalisation principles; Distinguish between good and bad database design;
1-3		学习关系数据库标准语言 SQL; 熟练掌握数据定义、数据查询、数据操纵和数据控制语句以及完整性约束, 具备构造高效的 SQL 查询以根据需要检索和操作数据的能力; 了解查询优化; 学习嵌入式 SQL 和数据库编程。 Learn the standard language of relational database SQL; Master data definition, data query, data manipulation, data control statements and integrity constraints, and have the ability to construct efficient SQL queries to retrieve and manipulate data as required; Understandingquery planning & optimization; learn embedded SQL and database programming.

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properties;Understand database recovery technology; Understanding concurrency controltheory. 2-1 解释数字的重要意义。 Understand the research and learning of database technology in improving the ability of independent innovation and building an innovation-oriented country. 3-2-2 Understand the research and learning of database technology in improving the ability of independent innovation and building an innovation-oriented country. 3-2-2 Understand the research and learning of database technology in improving the ability of independent innovation and building an innovation-oriented country. 3-2-2 Understand the research talents and construct the education network of industry-university cooperation to improve the core competitiveness of China in the global development. 3-2-2				数据库恢复技术;		
Understanding concurrency controltheory. 理解数据库技术的研究学习对提商自主创新能力,建设创新型国家的重要意义。 2-1 Understand the research and learning of database technology in improving the ability of independent innovation and building an innovation-oriented country. 以相提升信息技术人才的创新创业能力,构建产学合作的教育网络提高中国在全球发展核心竞争力。 Enhance the innovation and entrepreneurship ability of IT talents and construct the education network of industry-university cooperation to improve the core competitiveness of China in the global development. Puw要求 GA 1、 工程知识: 能够将数学、自然科等与毕业要求的对应关系 Matrix of GA & SLOs 指标点 GA Index 排标点 I-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关系型数据库设计的能力。 从内的股内的能力。从内容转动间的变量的影响,从内容转动间的变量的影响,从内容转动间的变量的影响,从内容转动间的变量的影响,从内容转动间的变量的影响,从内容转动间的变量的影响,从内容转动间的变量的影响,从内容转动间的影响,从内容扩展的影响,从内容引度的影响,从内容引度的影响,从内容引度的影响,从内容引度的影响,从内容引度的影响,从内容引度的影		1-4	Learn transaction processing an	d its ACID		
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特型要求 GA	進程 教	学日标				
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。 Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems. 2、问题分析: 能够应用数学、自然科学和工程科学的基本原理、方法和手段,识别、表达、并通过文献研究分析复杂工程问题,以获得有效结论。 2. Problem Analysis: Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. 3、设计/开发解决方案: 能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4,2-1,		-T-HW-		1		
自然科学、工程基础和专业		粉学	JEWIW GIT INGEX	秋1日州 5203		
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原理、方法和手段,识别、表达、并通过文献研究分析 指标点 2-1: 能够应用数学、自然科学和						
表达、并通过文献研究分析						
复杂工程问题,以获得有效			 			
结论。 析、识别、表达本专业相关的复杂工程 问题; Identify, formulate, research literature and analyze complex engineering problems using the basic principles of mathematics, natural sciences and engineering sciences. 4. Problem Analysis: 问题; Capable of analyzing, identifying and formulating the major-related complex engineering problems using the basic principle of mathematics, natural sciences and engineering sciences; A 设计/开发解决方案: 能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,						
2. ProblemAnalysis:问题;Identify, formulate, researchCapable of analyzing, identifying and formulating the major-related complex engineering problems using the basic problems reaching substantiated conclusions using first principles of mathematics, natural sciences 		寻 月 XX				
Identify, formulate, research literature and analyze complex engineering problems reaching problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. 3、设计/开发解决方案:能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,	',' '=	olveie:				
literature and analyze complex engineering problems using the basic problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. 3、设计/开发解决方案:能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,		•		12 12 1421		
complex engineering problems using the basic principle of mathematics, natural sciences and engineering sciences. substantiated conclusions using first principles of mathematics, natural sciences; and engineering sciences. 3、设计/开发解决方案:能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,	-			1-2, 1-3, 1-4,2-1		
problems reaching substantiated conclusions using first principles of mathematics, natural sciences; and engineering sciences; and engineering sciences. 3、设计/开发解决方案:能 指标点 3-1:能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,		•				
substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. 3、设计/开发解决方案:能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,		•				
using first principles of mathematics, natural sciences and engineering sciences. 3、设计/开发解决方案: 能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,	1 -	•				
mathematics, natural sciences and engineering sciences. 3、设计/开发解决方案:能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,			and engineering sciences,			
and engineering sciences. 3、设计/开发解决方案: 能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,						
3、设计/开发解决方案: 能 指标点 3-1: 能够设计针对本专业相关复 1-2,1-3,1-4, 2-1,	•					
			松石上 2.1 - 丝绫3几江红豆子土瓜石兰石	121214 21		
3 / 16	3、 以订/	杂:		1-2,1-3,1-4, 2-1,		

杂工程问题的解决方案,能够设计和开 够设计针对复杂工程问题的 解决方案,设计满足特定需 发实现特定功能、满足特定需求的计算 求的系统、单元或流程,并 机、软件或网络系统; 能够在设计环节中体现创新 Capable of designing solutions to complex 意识,考虑社会、健康、安 engineering problems related to the major, 全、法律、文化以及环境等 and capable of designing and developing 因素。 computers, software or network systems Design/Development that can function specifically and meet **Solutions:** Design solutions specific requirements. complex engineering 指标点 3-2: 能够对不同设计方案进行比 problems and design systems, 较和优化, 在工作各环节中具有创新意 components or processes that meet specified needs with 识。 appropriate consideration for Capable of comparing and optimizing public health, and safety, different design schemes, and innovative in cultural, societal, and all aspects of the work. environmental considerations. 指标点 5-1: 能够对本专业相关复杂工程 问题进行建模与分析, 理解获取相关信 息参数的必要性与基本方法, 并理解其 局限性; 5-1: Capable of modeling and analyzing 5、使用现代工具:能够针对 复杂工程问题,开发、选择 complex engineering problems related to 与使用恰当的技术、资源、 the major, understanding the necessity and 现代工程工具和信息技术工 具,包括对复杂工程问题的 basic methods of obtaining relevant 预测与模拟,并能够理解其 information parameters, their and 局限性。 Modern Tool Usage: Create, limitations. 1-3, 1-4, 2-1 select and apply appropriate 指标点 5-2: 熟悉解决本专业相关复杂工 techniques, resources and 程问题所需的技术和资源, 能够运用现 modern engineering and IT tools, including prediction and 代信息技术进行文献检索和资料查询, modeling, complex to 获取专业解决方案; engineering problems, with an understanding of the 5-2: Familiar with the technology and limitations. resources needed to solve complex engineering problems related to this major, and be able to use modern information technology for literature retrieval and data

query to obtain professional solutions.

指标点 5-3: 能够针对本专业相关复杂工	
程问题,选择与使用恰当的技术、资源、	
现代工程工具和信息技术工具。	
5-3: Capable of selecting and using	
appropriate technology, resources, modern	
engineering tools and information	
technology tools to solve complex	
engineering problems related to the major.	

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:	1		支撑教学目标:	1 1 1 2 1 2 1 4	
Knowledge Unit No.	1		SLOs Supported	1-1,1-2,1-3,1-4	
知识单元名称	绪论				
Unit Title			Introduction		
	数据库系统区	过用: Data	abase system applications		
	数据库系统的	的目的:Pu	rpose of database systems	S	
	数据:View of	data			
知识点:	数据库语言:I	Database	languages		
Knowledge Delivery	数据库设计:I	Database	design		
Knowledge Delivery	数据库和应用	月程序体)	系结构:Database and appl	lication architecture	
	数据库用户和管理员:Database users and administrators				
	数据库系统的历史				
	History of dat	History of database systems			
	了解:	数据库	系统的历史		
	Recognize	History	of database systems		
	理解:	数据库	系统应用,数据库系统的	目的,数据库语言	
 学习目标:	Understand	History	of database systems;	Purpose of database	
Learning Objectives	Understand	systems	; Database languages		
Learning Objectives		数据库	设计,数据库和应用程序	体系结构,数据库用户	
	掌握:	和管理	듓,		
	Master	Databas	e design; Database and a	pplication architecture;	
	Database users and administrators			8	
德育目标	2 1 2 2				
Moral Objectives	2-1,2-2				
重点:	数据库设计,数据库和应用程序体系结构,数据库用户和管理员;				
Key Points	Database desi	gn; Datal	base and application archi	tecture; Database users	

	T			
	and administrators			
难点:	数据库和应用	数据库和应用程序体系结构		
Focal points	Database and	oplication architecture		
知识单元序号:		支撑教学目标:		
Knowledge Unit No.	2	SLOs Supported	1-1,1-2	
知识单元名称		美系模型简介		
Unit Title		Introduction to the relational	model	
	关系数据库组	勾: Structure of relational datal	pase	
知识点:	数据库模式; Database schema 码; Keys			
Knowledge Delivery	关系查询语言; Relational query language			
	关系代数 The relational algebra			
	了解: 关系数据库结构			
	Recognize	Structure of relational database		
学习目标:	理解:	数据库模式,关系查询语言		
Learning Objectives	Understand	Database schema, relational que	ry language	
	掌握:	关系代数		
	Master	The relational algebra		
德育目标	2-1,2-2			
Moral Objectives				
重点:	数据库模式; 关系代数			
Key Points	Database schema; The relational algebra			
难点:	关系代数			
Focal points	The relational algebra			

知识单元序号:	3		支撑教学目标:	1-1, 1-3,	
Knowledge Unit No.			SLOs Supported		
知识单元名称	SQL 语言基础	出			
Unit Title	Introduction to	o SQL			
	SQL 概述:(Overview	of the SQL query langua	age	
	SQL 数据定り	义: SQL	data definition		
知识点:	SQL 查询语句	可语法结	构: Basic structure of S	QL queries	
,	附加基本操作: Additional basic operations				
Knowledge Delivery	集合操作: Set operations 空值: Nullvalues				
	聚集函数: Aggregatefunctions				
	嵌套子查询: Nestedsubqueries				
	了解:	SQL 概	述		
	Recognize	Overvie	w of the SQL query lang	guage	
	理解:	SQL 数	据定义		
学习目标:	Understand	SQL dat	ta definition		
上earning Objectives		SQL 查	音询语句语法结构: E	Basic structure of SQL	
Learning Objectives	** 掌握:	queries			
	手/注: Master	附加基準	本操作:Additional bas	ic operations	
	wiaster	集合操作	作: Set operations		
		空值:	Nullvalues		

		取焦云	What A Control	
			数: Aggregatefunctions	
生 カロに		歌雲丁:	查询: Nestedsubqueries	
德育目标	2-1,2-2			
Moral Objectives				
エレ	SQL 查询语句语法结构,附加基本操作,集合操作,空值,聚集函数。			
重点:		•		
Key Points			QL queries; Additional	-
	-	illvalues;	Aggregatefunctions; Nes	tedsubqueries
难点:	嵌套子查询			
Focal points	Nestedsubque	ries		
知识单元序号:	,		支撑教学目标:	
Knowledge Unit No.	4		SLOs Supported	1-2, 1-3
知识单元名称	中级及高级的	SQL 语言		
Unit Title	Intermediate S	SQL anda	dvanced SQL	
	联接:Join expressions 视图:Views 完整性约束:Integrity constraints SQL 数据类型和模式:SQL Data Types and Schemas			
La VEL La				
知识点:				
Knowledge Delivery	定义索引: Index definition in SQL			
	触发器: Triggers			
	函数和过程: Functions and procedures			
	了解:	触发器,	函数和过程	
	Recognize	Triggers	s; Functions and procedur	res
学习目标:	理解:	完整性	约束, SQL 数据类型和模	
Learning Objectives	Understand	Integrity	constraints; SQL Data T	Types and Schemas
	掌握:	联接,视	图,定义索引	
	Master	Join exp	oressions; Views; Index d	efinition in SQL
德育目标	2-1,2-2			
Moral Objectives	2-1,2-2			
重点:	联接,视图,定义索引			
Key Points	Join expressions; Views; Index definition in SQL			L
难点:	触发器,函数和过程			
Focal points	Triggers; Functions and procedures			

知识单元序号:	5	支撑教学目标:	1-1,1-2
Knowledge Unit No.	3	SLOs Supported	1-1,1-2
知识单元名称		数据库设计	
Unit Title		Database design	
	数据库设计过程		
	Database design proces	SS	
知识点:	数据字典		
Knowledge Delivery	Data dictionary		
	数据流图		
	Data flow diagram		

	20日 10 10 14 14	1.世纪教程序概念体执识1.		
		运用 E-R 模型进行数据库概念结构设计		
	Databasedesign using the E-R model			
	将 E-R 模型氧	专换为关系模式		
	Reducing E-R	diagramstorelationalschemas		
		复杂属性		
	了解:	Complex attributes		
	Recognize	扩展的 E-R 模型		
		Extended E-R features		
学习目标:	理解:	删除实体集中的冗余属性		
Learning Objectives	Understand Removing Redundant Attributes in EntitySets			
	运用 E-R 模型进行数据库概念结构设计			
	掌握:	Databasedesign using the E-R model		
	Master	将 E-R 模型转换为关系模式		
		Reducing E-R diagramstorelationalschemas		
德育目标	2 1 2 2			
Moral Objectives	2-1,2-2			
	运用 E-R 模型	型进行数据库概念结构设计		
重点:	Databasedesig	n using the E-R model		
Key Points	将 E-R 模型转换为关系模式			
	Reducing E-R diagramstorelationalschemas			
	运用 E-R 模型进行数据库概念结构设计,将 E-R 模型转换为关系			
难点:	模式			
Focal points	Databasedesig	n using the E-R model ; Reducing E-R		
	_	ationalschemas		
	.6			

			I		
知识单元序号:	6		支撑教学目标:	1-2, 1-3	
Knowledge Unit No.	U		SLOs Supported	1-2, 1-3	
知识单元名称			关系数据设计理论		
Unit Title		Rela	ational database design the	eory	
	良好关系设计	上的特点:			
	Features of go	od relatio	onal designs		
	函数依赖:				
	Functional-dependency theory				
ku:11 -k	使用函数依赖关系进行分解:				
知识点:	Decomposition using functional dependencies				
Knowledge Delivery	范式:Normal	forms			
	第一范式到 BC 范式:				
	1NF, 2NF, 3N				
	使用函数依束	负关系的?	分解算法:		
	Algorithms for decomposition using functional dependencies				
	了解: 多值依赖,4NF, 5NF				
学习目标:	Recognize Multivalued Dependencies; 4NF, 5NF			5NF	
Learning Objectives	理解: 良好关系设计的特点:				
	Understand	Features	s of good relational design	18	

	掌握: Master	使用函数依赖关系进行分解: Decomposition using functional dependencies	
	Master	范式:Normal forms	
德育目标	2-1,2-2		
Moral Objectives	2-1,2-2		
重点: Key Points	函数依赖:Functional-dependency theory 使用函数依赖关系的分解算法 Algorithms for decomposition using functional dependencies 第一范式到 BC 范式 1NF, 2NF, 3NF, BCNF		
难点: Focal points	函数依赖:Functional-dependency theory 使用函数依赖关系的分解算法 Algorithms for decomposition using functional dependencies		

知识单元序号:			支撑教学目标:	11 11
Knowledge Unit No.	7		SLOs Supported	1-1, 1-4
知识单元名称	事务处理			
Unit Title	Transactionsprocessing			
	事务的概念:	事务的概念:Transaction concept		
	一个简单的事	一个简单的事务模型:A simple transaction model		
知识点:	事务的原子性	性和持久 [']	性:Transaction atomicity	and durability
Knowledge Delivery	事务的隔离性	±:Transac	ction isolation	
Knowledge Delivery	可串行化:Ser	ializabili	ty	
	事务隔离与原	原子性:Tr	ansaction isolation and at	tomicity
	事务隔离级别	事务隔离级别:Transaction isolation levels		
	了解: 事务隔离级别			
	Recognize	RecognizeTransaction Isolation Levels理解:事务的概念		
	理解:			
学习目标:	Understand	Understand Transaction concept		
Learning Objectives		事务的	原子性和持久性	
	掌握:	Transac	tion atomicity and durabi	lity
	Master	事务的	隔离性:Transaction isola	tion
		可串行	化:Serializability	
德育目标	2122			
Moral Objectives	2-1,2-2			
重点:	事务的原子性	t和持久'	生:Transaction atomicity	and durability
E Key Points	事务的隔离性:Transaction isolation			
Key Tollits	可串行化:Serializability			
难点:	可串行化:Serializability			
Focal points	. 1 1 1 1 1 DCI	ianzaom	· J	

知识单元序号:	8	支撑教学目标:	1-1, 1-4
Knowledge Unit No.	O	SLOs Supported	1-1) 1-4
知识单元名称	并发控制		
Unit Title		Concurrency control	

	基本锁的协议:Lock-based protocols			
	死锁:Deadlock handling			
知识点:	多粒度:Multi	多粒度:Multiple granularity		
Knowledge Delivery	插入操作、删除操作和谓词读取:			
	Insert operation	ons, delete operations, and predicate reads		
	时间戳协议:	Fimestamp-based protocols		
	了解:	甘木燃的中心 1 - 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		
	Recognize	基本锁的协议:Lock-based protocols		
	TH 47.	插入操作、删除操作和谓词读取:		
学习目标:	理解:	Insert operations, delete operations, and predicate reads		
Learning Objectives	Understand	时间戳协议:Timestamp-based protocols		
	掌握:	基本锁的协议:Lock-based protocols		
	手症: Master	死锁:Deadlock handling		
	Master	多粒度:Multiple granularity		
德育目标	2122			
Moral Objectives	2-1,2-2			
重点:	基本锁的协议:Lock-based protocols			
Key Points	死锁:Deadlock handling			
难点:	死锁:Deadlock handling			
Focal points	グロ映.DeadIoc	ak nanding		

知识单元序号:	9		支撑教学目标:	1-1, 1-4
Knowledge Unit No.			SLOs Supported	1-1, 1-4
知识单元名称		数据库恢复		
Unit Title			Recovery system	
	故障分类:Fai	lure class	ification	
	数据转储:Da	tastorage		
	日志文件:Log	g files		
知识点:	恢复与原子性	E:Recove	ry and atomicity	
,	恢复算法:Red	covery alg	gorithm	
Knowledge Delivery	缓冲区管理:I	Buffer ma	nagement	
	非易失性存储器故障:Failure with loss of non-volatile storage			
	远程备份系统:High availability using remote backup systems			
	锁释放和 UNDO 操作:Early lock release and logical undo operation			
	了解·			
	Recognize	数据转位	数据转储:Datastorage	
	理解:	北京大八	¥ E '1 1 'C' .'	
 学习目标:	Understand	议 阿分:	故障分类:Failure classification	
		恢复与	原子性:Recovery and ato	micity
Learning Objectives	掌握:	恢复算	法:Recovery algorithm	
	• "	日志文	志文件:Log files	
	Master	Master I	和 UNDO 操作	
			ck release and logical und	do operations
重点:	恢复与原子性:Recovery and atomicity			
Key Points		恢复算法:Recovery algorithm		
. ,	MATIGOTO TO I MIGOTUM			

	日志文件:Log files 锁释放和 UNDO 操作:Early lock release and logical undo operations
难点: Focal points	锁释放和 UNDO 操作:Early lock release and logical undo operations

(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	实验项目名称	学时	每组人数	实验类型	实验性质
No.	Experiment Topic	Hours	MPG*	Type	Pattern
	数据库的建立与管理实验			设计性	必做
1	Establishment and Management of	2	1	Design	是何以 Elec
	DatabasesExperiment			Design	Elec
	数据表的建立与约束完整性实验			设计性	14 A4
2	Establishment of Data Table and	2	1		必做
	Constraint Integrity Experiment			Design	Elec
	数据更新与数据查询实验			沿斗州	177 H-F
3	Data Update and Data Query	2	1	设计性	必做
	Experiment			Design	Elec
4	索引与视图实验	2	1	综合性	必做
4	Index and View Experiment	2	1	Comp	Elec
	总计 Total	8			

^{*}MPG: Members per group

实验项目序号:	1	支撑教学目标:	1-1,1-3,1-4	
Experiment No.	1	SLOs Supported	1-1,1-5,1-4	
每组成员:	1	指导教师:	李佳音	
Members per Group	1	Tutor	子任日	
实验名称:	类	数据库的建立与管理实验	<u> </u>	
Experiment Title	Establishment a	nd Management of Datab	pasesExperiment	
	SQL S	SQL SEVER2019 实验环境的搭建;		
	Establishment of SQL SEVER2019 Experimental Environment;			
	在企	企业管理器中建立数据原	库 ;	
实验内容:	Establishing	g a database in Enterprise	Manager;	
Content	在3	查询编辑器中建立数据原	库 ;	
	Establishing a database in the query editor;			
	Create	e/Alter database 语句的位	吏用;	
	The use of Create/Alter database statements;			
₩ - 1 1 1 -	掌握在 sqlserver 环境	中使用企业管理器和查	询编辑器建立并管理	
学习目标:	_	长,熟练使用 create/alter		
Learning Objectives	Master the method of	using Enterprise Manage	er and Query Editor to	

	establish and manage databases in SQL Server, and be proficient in using the create/filter database statement
教学要求: Requirements	每个学生独立完成实验,撰写实验报告 Each student completes the experiment independently, and writes the experiment report
实验场地:	综合楼 1108
Location	Z1108
实验软硬件设备:	SQLSERVER2019
Software/Hardware	SQLSERVERDatabase Management System software

		,	
实验项目序号:	2	支撑教学目标:	1-1,1-3,1-4
Experiment No.	2	SLOs Supported	1-1,1-5,1-4
每组成员:	1	指导教师:	李佳音
Members per Group	1	Tutor	子 性目
实验名称:	数据表的建立与约束完整性实验		
Experiment Title	Establishment of Da	ata Table and Constraint I	ntegrity Experiment
	在企业管理器中建立数据库表;		
	Establishing a	a databasetablein Enterpri	se Manager;
	在查	询编辑器中建立数据库	表;
实验内容:	Establishing	g a database tablein the qu	ery editor;
Content	为数	数据表添加约束完整性系	条件
	Add constrain	t integrity conditions to th	ne data table;
	Cre	用;	
	The use of Create/Alter table statements;		
	掌握在 sqlserver 环境	中使用企业管理器和查	询编辑器建立并管理
	数据库表的方法,熟	练使用 create/alter Table	语句并为数据表添加
 学习目标:		约束完整性条件	
Learning Objectives	Master the method of	using Enterprise Manage	er and Query Editor to
Learning Objectives	establish and manage	databases table in SQL Se	erver, and be proficient
	in using the create/al	lter table statementandAd	d constraint integrity
	С	onditions to the data table	e.
*************************************	每个学生	主独立完成实验,撰写 实	实验报告
教学要求:	Each student completes the experiment independently, and writes the		
Requirements	experiment report		
实验场地:	综合楼 1108		
Location	Z1108		
实验软硬件设备:	SQLSERVER2019		
Software/Hardware	SQLSERVER	Database Management Sy	ystem software
		-	

实验项目序号:	2	支撑教学目标:	1 2 1 2 1 4
Experiment No.	3	SLOs Supported	1-2,1-3,1-4
每组成员:	1	指导教师:	李佳音
Members per Group	1	Tutor	子注目

实验名称:	数据更新与数据查询实验
Experiment Title	Data Update and Data Query Experiment
	在企业管理器中进行数据表记录的插入和更新;
	Inserting and updating data table records in Enterprise Manage;
	在查询编辑器中进行数据表记录的插入和更新
实验内容:	Inserting and updating data table records in the query editor
Content	insert into/update 语句的使用
	Use of insert into/update statements
	select 语句及其子句的使用
	Use of Select statement and its clauses
	掌握在企业管理器中进行数据记录插入和更新的方法,熟练使用
学习目标:	insert into/update 语句,掌握使用 select 语句进行数据查询的方法
	Master the methods of inserting and updating data records in Enterprise
Learning Objectives	Manager, proficiently use insert into/update statements, and master the
	methods of using select statements for data queries
华沙田子	每个学生独立完成实验,撰写实验报告
教学要求:	Each student completes the experiment independently, and writes the
Requirements	experiment report
实验场地:	综合楼 1108
Location	Z1108
实验软硬件设备:	SQLSERVER2019
Software/Hardware	SQLSERVERDatabase Management System software

实验项目序号:	4	支撑教学目标:	1-2,1-3,1-4
Experiment No.	4	SLOs Supported	1-2,1-3,1-4
每组成员:	1	指导教师:	李佳音
Members per Group	1	Tutor	子
实验名称:	索引与视图实验		
Experiment Title	It	ndex and View Experime	nt
	在企业管理	器和查询编辑器中建立	并管理索引
	Establish and manage i	indexes in Enterprise Ma	nager and Query Editor
	在企业管理	2器和查询编辑器中建立	并管理视图
实验内容:	Establish and manage views in Enterprise Manager and Query Editor		
关业内台。 Content	Create/alterindex/view 语句的使用		
Content	Use of Create/alterindex/view Statement		
	通过视图进行	厅数据源表记录的插入·	、更新与删除
	Inserting, updating, and deleting data source table records through		
		views	
	掌握在企业管理器中	中建立和管理索引和视图	图的方法,熟练使用
	Create/alterindex/view 语句,掌握通过视图进行数据源表记录的插		
学习目标:	入、更新与删除的方法		
	Master the methods of establishing and managing indexes and views in		
Learning Objectives	Enterprise Manager, proficiently use Create/filter index/view		
	statements, and master	the methods of inserting	, updating, and deleting
	data source table record	ds through views.	

教学要求: Requirements	每个学生独立完成实验,撰写实验报告		
	Each student completes the experiment independently, and writes the		
	experiment report		
实验场地:	综合楼 1108		
Location	Z1108		
实验软硬件设备:	SQLSERVER2019		
Software/Hardware	SQLSERVERDatabase Management System software		

四、教学安排 Teaching Schedule

注: 可根据实际情况增减行数

Note: Please add/reduce lines based on subject.

	学时(周)Hour(Week)			
教学内容 Teaching Content	理论 LECT.	实验 EXP.	实践 PRAC.	PBL
绪论 Introduction	4	0	0	0
关系模型简介 Introduction to the relational model	6	0	0	0
SQL 语言基础 Introduction to SQL	6	2	0	0
中级及高级 SQL 语言 Intermediate SQL andadvanced SQL	6	2	0	0
数据库设计 Database design	6	4	0	0
关系数据设计理论 Relational database design theory	6	0	0	0
事务处理 Transactionsprocessing	2	0	0	0
并发控制 Concurrency control	2	0	0	0
数据库恢复 Recovery system	2	0	0	0
总计 Total	40	8	0	0

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 lines or revise content based on subject.

勾选 Check 教学方法与特色 Teaching Methodology & Characters
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M	多媒体教学:基于信息化设备的课堂教学	
V.	Multi-media-basedlecturing	
M	实践能力传授: 理论与行业、实际案例相结合	
<u>V</u>	Combining theory with industrial practical problems	
M	课程思政建设:知识讲授与德育相结合	
<u>~</u>	Knowledgedeliverywithethiceducation	
M	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 lines or revise content based on subject.

考核环节: Assessment Content	平时 Behavior	环节负责人: Director	敬茂华	
给分形式:		课程总成绩比重(%):		
Result Type	百分制 Marks	Percentage (%)	30	
	满分 100 分,以学生平时考勤、课堂表现、课堂教师随机提问,学			
	期综合大作业完成情况综合评定,其中,学生考勤占比50%,平时			
	课堂表现、课堂教师随机提问占比 20%, 学生平时作业(课前预习作			
	业、课后作业)完成情况占比 30%.			
考核方式:	The full score is 100. Students' attendance, classroom performance,			
Measures	random questions from teachers, and students' homework completion			
	are comprehensively evaluated. Among them, students' attendance			
	accounts for 50%, classroom performance and random questions from			
	teachers account for 20%, and students' homework (preview homework			
	before class and homework after class) accounts for 30%.			

考核环节:	实验 Experiment	环节负责人:	李佳音
Assessment Content	头驰 Experiment	Director	子任百
给分形式:	工八出 1	课程总成绩比重(%):	20
Result Type	百分制 Marks	Percentage (%)	20
考核方式: Measures	满分 100 分,按要求完成实验课内容撰写并按时上交实验报告,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。 The full score is 100, record students' scores through comprehensive homework report. According to the students' report completion and contribution degree, the score is given. Plagiarism, plagiarism to others or failure to hand in the experimental report will not be scored.		

考核环节:	期末 Final	环节负责人:	敬茂华
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Assessment Content		Director		
给分形式:	百分制 Marks	课程总成绩比重(%):	50	
Result Type	自分型 Warks	Percentage (%)	50	
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。 The full score is 100, and students' scores are given according to the final examination.			

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):	4	修订周期(年):	4		
Check Period (YR)	4	Revise Period (YR)	4		
	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。				
改进措施:	The subject coordinato	r shall be responsible for	the syllabus discussion		
Measures	and improvement, and the revised version shall be submitted to deputy				
	dean (teaching affairs) for reviewing then to executive dean for				
	improvement.				
成绩i	成绩评定改进机制 Assessment Improvement Mechanism				
考核周期(年):	1	修订周期(年):	1		
Check Period (YR)	1	Revise Period (YR)	1		
	课程负责人根据课程	教学内容、课堂教学效务	果以及成绩分布,对课		
 改进措施:	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。				
区过恒旭: Measures	The subject coordinator shall revise the syllabus based on the teaching				
ivieasures	content, effect and result distribution while optimize the assessment				
	measures.				