硕士研究生培养计划与课程大纲

Curriculum and Syllabus for Graduate Program

1 航空工程（航空宇航制造工程）
 Aeronautical Engineering

2 机械工程（机械制造及其自动化）
 Mechanical Engineering（Mechanical Manufacturing and Automation)

3 计算机应用技术
 Computer Applied Technology

4 企业管理
 Business Management

沈阳航空航天大学国际教育学院

Shenyang Aerospace University

International Education College

2015.10

目录 Contents

航空工程（航空宇航制造工程）

Aeronautical Engineering

第一学年 First Year （1 Year）

第1学期 1st Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
公共基础课 Fundamental	综合汉语	Comprehensive Chinese	36	2.0
	中国概况	Introduction to China	36	2.0
	数值分析	Numerical analysis	45	2.5
专业基础课 Technical Fundamental	CAD/CAM技术	CAD/CAM Technology	54	3.0
	塑性成型原理与工艺	Principle and Technology of Plasticity Moulding	54	3.0
Sub Total				**12.5**

第2学期 2nd Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
公共基础课 Fundamental	综合汉语	Comprehensive Chinese	36	2.0
	矩阵理论	Matrix theory	45	2.5
	科技论文写作	Technical Paper Writing	18	1.0
专业课 Technical	计算机辅助飞机几何造形技术	Computer aided aircraft geometric shaping technology	54	3.0
	现代测试技术	Modern Measurement Technical	54	3.0
Sub Total				**11.5**

选修课

第1学期 1st Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
选修课 Compulsory Elective	机械设计理论及技术	Moder Machinery Design and Theory	54	3.0
	分布式操作系统	Distributed Operating System	54	3.0
	计算机网络体系结构	Computer Network Architecture	54	3.0
	嵌入式系统	The Embedded System	54	3.0
	SPSS统计分析	SPSS Statistics Analysis	54	3.0
	企业战略管理	Corporate Strategy	36	2.0
	中级经济学	Intermediate Economics	54	3.0
	国际商法	International Business Law	36	2.0
				22.0

第2学期 2nd Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
选修课 Compulsory Elective	现代制造技术		54	3.0
	国际电子商务	International E-Business	36	2.0
	财务管理	Financial Management	54	3.0
	资本运营	Capital Operation	36	2.0
	企业资源计划	Enterprise Resource Planning	36	2.0
	企业管理咨询与诊断	Enterprise Management Consultant and Diagnosis	36	2.0

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
				14.0
选修课 Compulsory Elective	机器人学	Robotics	36	2.0
	工程管理与准则	Engineering management and ethics	36	2.0
	有限元结构分析	Finite element method for structural analysis	36	2.0
	飞机建模与仿真	Aircraft modeling and simulation	36	2.0
				4.0
Sub Total				**46**
第二学年 Second Year（1.5year）				
课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
	学术报告及科研实践	Lecture Activity		2.0
	学位论文	Project & Thesis		3.0
Sub Total				**5.0**
Total				

机械工程（机械制造及其自动化）

Mechanical Engineering（Mechanical Manufacturing and Automation）

第1学期 1st Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
公共基础课 Fundamental	综合汉语	Comprehensive Chinese	36	2.0
	中国概况	Introduction to China	36	2.0
	数值分析	Numerical analysis	45	2.5
专业基础课 Technical Fundamental	CAD/CAM技术	CAD/CAM Technology	54	3.0
	机械设计理论及技术	Modernn Machinery Design and Theory	54	3.0
Sub Total				**12.5**

第2学期 2nd Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
公共基础课 Fundamental	综合汉语	Comprehensive Chinese	36	2.0
	矩阵理论	Matrix theory	45	2.5
	科技论文写作	Technical Paper Writing	18	1.0
专业课 Technical	现代制造技术	Modern manufacturing techniques	54	3.0
	现代测试技术	Modern Measurement Technical	54	3.0
Sub Total				**11.5**

选修课

第1学期 1st Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
专业基础课 Technical Fundamental	塑性成型原理与工艺	Plastic molding Principles and Technology	54	3.0
	分布式操作系统	Distributed Operating System	54	3.0
	计算机网络体系结构	Computer Network Architecture	54	3.0
	嵌入式系统	The Embedded System	54	3.0
	SPSS统计分析	SPSS Statistics Analysis	54	3.0
	企业战略管理	Corporate Strategy	36	2.0
	中级经济学	Intermediate Economics	54	3.0
	国际商法	International Business Law	36	2.0
				22.0

第2学期 1st Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
专业基础课 Technical Fundamental	计算机辅助飞机几何造形技术	Computer aided aircraft geometric shaping technology	54	3.0
	国际电子商务	International E-Business	36	2.0
	财务管理	Financial Management	54	3.0
	资本运营	Capital Operation	36	2.0
选修课 Compulsory Elective	企业资源计划	Enterprise Resource Planning	36	2.0
	企业管理咨询与诊断	Enterprise Management Consultant and Diagnosis	36	2.0

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
				14.0
选修课 Compulsory Elective	机器人学	Robotics	36	2.0
	工程管理与准则	Engineering management and ethics	36	2.0
	有限元结构分析	Finite element method for structural analysis	36	2.0
	飞机建模与仿真	Aircraft modeling and simulation	36	2.0
				10.0
	Sub Total			**46.0**

第二学年 Second Year（1.5year）				
课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
	学术报告及科研实践	Lecture Activity		2.0
	学位论文	Project & Thesis		3.0
	Sub Total			**5.0**
Total				

计算机 应用技术

Computer Applied Technology

第一学年 First Year （1 Year）

第1学期 1st Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
公共基础课 Fundamental	综合汉语	Comprehensive Chinese	36	2.0
	中国概况	Introduction to China	36	2.0
	数值分析	Numerical analysis	45	2.5
专业基础课 Technical Fundamental	高级计算机网络	Advanced Computer Network	54	3.0
	嵌入式系统	The Embedded System	54	3.0
Sub Total				**12.5**

第2学期 2nd Semester

课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
公共基础课 Fundamental	综合汉语	Comprehensive Chinese	36	2.0
	矩阵理论	Matrix theory	45	2.5
	科技论文写作	Technical Paper Writing	18	1.0
专业基础课 Technical Fundamental	分布式操作系统	Distributed Operating System	54	3.0
Sub Total				**8.5**

选修课

第1学期 1st Semester

课程性质	课程名称	Course Name	总学时	学分
专业基础课 Technical Fundamental	CAD/CAM技术	CAD/CAM Technology	54	3.0
	塑性成型原理与工艺	Plastic molding Principles and Technology	54	3.0
	机械设计理论及技术	Moder Machinery Design and Theory	54	3.0
	SPSS统计分析	SPSS Statistics Analysis	54	3.0
	企业战略管理	Corporate Strategy	36	2.0
	中级经济学	Intermediate Economics	54	3.0
	国际商法	International Business Law	36	2.0
				19.0

第2学期 2nd Semester

课程性质	课程名称	Course Name	总学时	学分
专业基础课 Technical Fundamental	计算机辅助飞机几何造形技术	Computer aided aircraft geometric shaping technology	54	3.0
	现代制造技术	Modern manufacturing techniques	54	3.0
	现代测试技术	Modern Measurement Technical	54	3.0
	国际电子商务	International E-Business	36	2.0
	财务管理	Financial Management	54	3.0
	资本运营	Capital Operation	36	2.0
选修课 Compulsory Elective	企业资源计划	Enterprise Resource Planning	36	2.0
	企业管理咨询与诊断	Enterprise Management Consultant and Diagnosis	36	2.0
	机器人学	Robotics	36	2.0
				22.0

选修课 Compulsory Elective	机器人学	Robotics	36	2.0
	工程管理与准则	Engineering management and ethics	36	2.0
	有限元结构分析	Finite element method for structural	36	2.0
	飞机建模与仿真	Aircraft modeling and simulation	36	2.0
				8.0

第二学年 Second Year（1.5year）				
课程性质	课程名称	Course Name	总学时 Hours	学分 Credits
	学术报告及科研实践	Lecture Activity		2.0
	学位论文	Project & Thesis		3.0
Sub Total				**5.0**
Total				

2015 培养计划 企业管理硕士
2015 Curriculum of Business Management

第一学年第一学期		First Year First Semester				
课程编号	课程性质	课程名称	Course Name	学时	学分	
Code	Course			Hours	Credits	
	FD	综合汉语（1）	Comprehensive Chinese	36	2	
	FD	中国文化与历史	Introduction to Chinese Cultural and History	32	2	
	SP	财务管理	Financial Management	54	3	
	SP	公司金融	Enterprise Finance	54	3	
	TF	SPSS统计分析	SPSS Statistical Analysis	54	3	
	TF	国际商事法律及实务	International Commercial Law and Practices	36	2	
	OE	供应链设计与管理	Design and Management of Supply Chain	36	2	
					17	

第一学年第二学期		First Year Second Semester				
课程编号	课程性质	课程名称	Course Name	学时	学分	
Code	Course			Hours	Credits	
	FD	综合汉语（2）	Comprehensive Chinese	36	2	
	FD	科技论文写作	Scientific Writing	16	1	
	SP	资本运营	Capital Management	36	2	
	TF	中级经济学	Intermediate Economics	54	3	
	SP	战略管理	Strategic Management	54	3	
	OE	管理方法研究	Methodology of Management	36	2	
	LB	企业资源计划	Enterprise Resource Planning	2W	2	
					15	

Total   **32**

COURSE OUTLINE

COURSE TITLE: **Comprehensive Chinese**

COURSE CODE:

CREDIT POINTS: 2/2

CONTACT HOURS: 36/36

LEVEL: Graduate，1st&2nd Semester

DELIVERY: Lectures

Course Description:

This course was conducted according to the syllabus of Comprehensive Chinese to the international students at SAU. The total teaching hour of this course is 36. The teaching content and relevant teaching is as follow:

First semester

Lesson1 Hello	3hours
Lesson2 How are you	3hours
Lesson3 What is your name	3hours
Lesson4 What nationality are you	3hours
Lesson5 Where do you live	3hours
Lesson6 How many people are there in your family	2hours
Mid-term exam	1hour
Lesson7 What is the date today	3hours
Lesson8 What time is it now	3hours
Lesson9 Where is the subway station	3hours
Lesson10 How much is 500g of apples	3hours
Lesson11 What do you want to buy	3hours
Lesson12 Can I try on	2hours
Review for final-exam	1hour

Second semester

Lesson13 I want to eat some steamed stuffed buns	3hours
Lesson14 I go to library and borrow some books	3hours
Lesson15 I want to exchange some money	3hours
Lesson16 My mother has sent me a parcel by mail	3hours
Lesson17 I want to rent an apartment with a kitchen	3hours

Lesson18 What is wrong with you	2hours
Mid-term exam	1hour
Lesson19 How do you like your haircut	3hours
Lesson20 Your Chinese is very fluent	3hours
Lesson21 Have you seen my dictionary	3hours
Lesson22 How long have you been studying Japanese	3hours
Lesson23 Class begins, please come in	3hours
Lesson24 You speak better Chinese than I do	2hours
Review for final-exam	1hour

Course Outcomes:

The course is aimed to foster students' Chinese listening, reading speaking and writing abilities and basic communication skills. By learning this textbook, students can acquire new words and expressions in each lesson. With the grammars and sentence structures learn, students can read the text, do the role play according to the text and write some simple Chinese character.

Course Content:

First semester:

Times /week	Times /lesson	Course Arrangement(by chapter, section)	credits	Teaching methods	1. Reference book 2. Operations(required) 3. Use of teaching aids 4. Others
2nd/ W	2nd/L	Lesson1 Hello	3	Interpretation method Demonstration method	PPT
3rd/W	2nd/L	Lesson1 Hello Lesson2 How are you	3	Interpretation method Demonstration method	PPT
4th/W	2nd/L	Lesson3 What is your name	3	Interpretation method Demonstration method	PPT

5th/W	2nd/L	Lesson4 What nationality are you	3	Interpretation method Demonstration method	PPT
6th/W	2nd/L	Lesson4 What nationality are you Lesson5 Where do you live	3	Interpretation method Demonstration method	PPT
7th/W	2nd/L	Lesson6 How many people are there in your family Mid-term exam	3	Interpretation method Demonstration method	PPT
8th/W	2nd/L	Lesson7 What is the date today	3	Interpretation method Demonstration method	PPT
9th/W	2nd/L	Lesson7 What is the date today Lesson8 What time is it now	3	Interpretation method	PPT
10th/W	2nd/L	Lesson9 What time is it now	3	Interpretation method Demonstration method	PPT
11th/W	2nd/L	Lesson10 How much is 500g of apples	3	Interpretation method Demonstration method	PPT
12th/W	2nd/L	Lesson11 What do you want to buy	3	Interpretation method Demonstration method	PPT

13th/W	2nd/L	Lesson12 Can I try on Review for final-exam	3	Interpretation method	PPT

Second semester:

Times /week	Times /lesson	Course Arrangement(by chapter, section)	credits	Teaching methods	5. Reference book 6. Operations(required) 7. Use of teaching aids 8. Others
2nd/W	2nd/L	Lesson13 I want to eat some steamed stuffed buns	3	Interpretation method Demonstration method	PPT
3rd/W	2nd/L	Lesson13 I want to eat some steamed stuffed buns Lesson14 I go to library and borrow some books	3	Interpretation method Demonstration method	PPT
4th/W	2nd/L	Lesson15 I want to exchange some money	3	Interpretation method Demonstration method	PPT
5th/W	2nd/L	Lesson16 I want to exchange some money	3	Interpretation method Demonstration method	PPT
6th/W	2nd/L	Lesson16 I want to exchange some money Lesson17 I want to rent an apartment with a kitchen	3	Interpretation method Demonstration method	PPT
7th/W	2nd/L	Lesson18 I want to rent an apartment with a kitchen Mid-term exam	3	Interpretation method Demonstration method	PPT

8th/W	2nd/L	Lesson19 How do you like your haircut	3	Interpretation method Demonstration method	PPT
9th/W	2nd/L	Lesson19 How do you like your haircut Lesson20 Your Chinese is very fluent	3	Interpretation method	PPT
10th/W	2nd/L	Lesson21 Have you seen my dictionary	3	Interpretation method Demonstration method	PPT
11th/W	2nd/L	Lesson22 How long have you been studying Japanese	3	Interpretation method Demonstration method	PPT
12th/W	2nd/L	Lesson23 Class begins,please come in	3	Interpretation method Demonstration method	PPT
13th/W	2nd/L	Lesson24 Class begins,please come in Review for final-exam	3	Interpretation method	PPT

Textbooks and Reference Materials:

Textbook : *Experiencing Chinese*

References: Boya Chinese·Elementary Ⅰ

Development of Chinese·Elementary Comprehensive

Type of Assessment and Weighting:

1. Student attendance and performance   (20%)
2. The mid-term exam   (20%)
3. Two small test   (20%)
4. The final exam   (40%)

   Students attendance and performance is will be marked on the three aspects, Attendance will have 10 marks. Absence will have 1.5 marks deduction, late will have deduction of 0.5 marks, leaving the class early will have 1 marks deduction. The second is assignment which comprises of 5 marks. The third is students' classroom performance which comprises of 5 marks.

Prepared by: Gao Yanan

   Chinese Language Office, IEC

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Introduction to China**
COURSE CODE: L17006

CREDIT POINTS: 2.0
CONTACT HOURS: 32
LEVEL: Undergraduate/Graduate, the 1h semester
DELIVERY: Lectures

Course Description:

This course introduces students to the characteristics of China's social development, Chinese history, and culture, Chinese traditional thinking inheritance and innovation of Chinese life changes, China's contribution to human civilization, and various manifestations of China's modernization. It also introduces the students to China's ideology of past, present, and future.

Course Outcomes:

After completing this course, the students should be able to:
1. Learn the history of the Chinese culture origin, development process, and characteristics.
2. Increase their knowledge and understanding of Chinese culture.
3. Quickly adapt to the Chinese culture, to avoid cultural conflict.

Course Content:

The course consists of three parts; the first part outlines China, including a flag presentation, administrative division of the region, the origin of the Chinese people and the Chinese primitive civilization. The second part discusses history of China's development process, including the prehistoric period, the legendary era, ancient times. The final part describes China's culture covering Chinese festivals, food, art, etc.

Textbooks and Reference Materials:

1. Guo Peng, Cheng Long, Jiang Xiliang. *Chinese Summary*. Higher Education Press.
2. Wang Shunhong. *Chinese Summary*. Beijing University Press.
3. Yang Yingjie, Fan Pengdong. *Chinese History Culture*, Nankai University Press.

Type of Assessment and Weighting:

1.	Attendance	30%
2.	Tests	20%
3.	Homework	20%
4.	Final report or project	30%

Prepared by: Li Yunqi

    International Education College

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Numerical Analysis**

COURSE CODE:

CREDIT POINTS: 2.5

CONTACT HOURS: 45

LEVEL: Postgraduate, 1st semester

DELIVERY: Lectures

Course Description:

The aim of this course is to introduce the fundamental theory and computational methods of numerical approach, as well as the implementation of various numerical algorithms in MATLAB language. The main property of the course is that it combines the classical numerical approach with the modern MATLAB software, and emphasizes on the realization of the numerical algorithms through the function commands in MATLAB. The key mathematical ideas in numerical analysis are widely used in the fields of science and engineering. Since the choice of topics are motivated by their applications in multifarious disciplines, the course will stress on the theoretical principles and the practical applications of this subject.

Course Outcomes:

This is a course about numerical analysis, which is also called computational mathematical, focusing on the combination of the numerical methods and the computer. The main topics will be a branch of mathematical science. Upon successful completion of this course, the student will be able to:

1.   Gaining an understanding of numerical analysis and its applications;

2.   Knowing the iteration and its applications;

3.   Understanding the interpolation and polynomial approximation and their applications;

4.   Obtaining an ability of curve fitting and its applications;

5.   Knowing the Composite Trapezoidal, Simpson Rule, Recursive Rules, Romberg Integration and Gauss-Legendre Integration and the applications.

Course Content:

1. Solution of Nonlinear Equation $f(x) = 0$

Iteration for Solving $x = g(x)$

Bracketing Methods for Locating a Root

Newton-Raphson and Secant Methods

2. Solution of Linear Systems $AX = B$

Upper-Triangular Linear Systems

Gaussian Elimination and Pivoting

Triangular Factorization

Iterative Methods for Linear Systems

Iteration for Nonlinear Systems

3. Interpolation and Polynomial Approximation

Taylor Series and Calculation of Functions

Introduction to Interpolation

Lagrange Approximation

Newton Polynomials

Chebyshev Polynomials

Pade Approximations

4. Curve Fitting

Least-Squares Line

Methods of Curve Fitting

Interpolation by Spline Function

Bezier Curves

5. Numerical Integration

Introduction to Quadrature

Composite Trapezoidal and Simpson's Rule

Recursive Rules and Romberg Integration

Gauss-Legendre Integration

TEXTBOOKS AND REFERENCE MATERIALS

1. Numerical Analysis(4th Edition), John H. Mathews, Kurtis D. Fink

2. Numerical Analysis (7th Edition), Timothy Sauer

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction to iteration, Fixed-Point Iteration	
2	2	Bisection Method of Bolzano, Convergence	
3	2	Newton-Raphson Theorem, Secant Method	
4	2	Upper Triangular, Back Substitution, Elementary Transformations, Gaussian elimination	
5	2	Triangular Factorization	
6	2	Jacobi Iteration	
7	2	Gauss-Seidel Iteration	
8	2	Quiz 1	
9	2	Taylor Series, Introduction to Interpolation	
10	2	Lagrange Approximation	
11	2	Newton Polynomials	
12	2	Chebyshev Polynomials	
13	2	Least-Squares Line, Power Fit	
14	2	Data Linearization Method, Nonlinear Least-Squares Method, Polynomial Fitting	
15	2	Cubic Spline, Endpoint Constraints, Suitability	
16	2	Bezier Curves	

17	2	Quiz 2	
18	2	Introduction to Quadrature, Composite Trapezoidal	
19	2	Composite Simpson's Rule	
20	2	Recursive Rules, Romberg Integration	
21	2	Summary	
22	3	General revision	
Total	45		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Quizzes	Two quizzes(5% each)	10%	After finishing the 2nd chapter and the 4th chapter
Class Participation	Attendance and Late	10%	
Assignment	Homework and report	20%	
Final Exam		60%	

Prepared by: Liu Yongjin

       College of Science

Date: September, 2015

COURSE OUTLINE

COURSE TITLE: **CAD/CAM Technology**

COURSE CODE:

CREDIT POINTS: **3**

CONTACT HOURS: 54

LEVEL: graduate, 1st semester

DELIVERY: Lectures

Course Description:

The *CAD/CAM Technology* is a discipline-based course of the major of *Mechanical Engineering* and the major of *Aeronautic Engineering*. The teaching objective of this course is to make students understand and grasp the basic concept, principle and usage of CAD/CAM software, especially, CATIA V5 software. Students in the major of *Mechanical Engineering* and *Aeronautic Engineering* study this technology for curriculum design, graduation paper and application of CAD software in the future work in the aircraft manufacturing, etc.

Course Outcomes:

Upon successful completion of this course, students will be able to:

1. Understand and master the basic principle and method of CAD/CAM Technology.

2. Master and understand specifications of Engineering drawing.

3. Develop their skilled in the use of the typical software CATIA V5.

4. Develop their capacity of analysis for the digital model.

Course Content:

This course mainly includes following contents:

Chap. 1 Introduction

1.1 Background knowledge of CAD/CAM

1.2 CATIA V5

Chap. 2 Fundamentals

2.1 Infrastructure

2.2 Sketcher

2.3 Part Design

2.4 Assembly Design

Exercise 1 Toy Excavator

Chap. 3 Parametric Surface Modeling

3.1 Generative Shape Design

3.2 Solid Design

Exercise 2 Mouse

Chap. 4 Design with Analysis

4.1 Infrastructure

4.2 Sketcher

4.3 Part Design (Solid-modeling)

4.4 GSD (Surface-modeling)

4.5 Assembly Design

4.6 Generative Structural Analysis

4.7 Product Engineering Optimizer

Exercise 3 Deep Fry Basket

Chap. 5 Freeform Surfaces

5.1 Infrastructure

5.2 Sketcher

5.3 Freestyle (Surface-modeling)

Exercise 4 Rebuild P51 Mustang

Chap. 6 Digital Mockup (DMU)

6.1 DMU Fitting

6.2 DMU Kinematics

Exercise 5 Scissor Jack

Textbooks and Reference Materials:

Proposals: Michel Michaud, CATIA Core Tools: Computer Aided Three-dimensional Interactive Application, McGraw-Hill Professional.

Comments: This is a fully illustrated guide to CATIA. "CATIA Core Tools: Computer-Aided Three-Dimensional Interactive Application" explains how to use the essential features of this cutting-edge solution for product design and innovation. The book begins with the basics, such as launching the software, configuring the settings, and managing files. Next, you'll learn about sketching, modeling, drafting, and visualization tools and techniques. Easy-to-follow instructions along with detailed illustrations and screenshots help you get started using several CATIA workbenches right away. Reverse engineering - a valuable product development skill - is also covered in this practical resource. Covers key CATIA workbenches, including: Part Design Workbench, Assembly Design Workbench, Drafting Workbench, Generative Shape Design Workbench, DMU Kinematics Workbench, Functional Tolerancing and Annotations Workbench, Aerospace Sheet Metal Design Workbench, Composites Design Workbench, Digitalized Shape Editor Workbench, and Quick Surface Reconstruction Workbench.

Type of Assessment and Weighting:

1. Attendance   30%

2. Tests   20%

3. Homework   20%

4. Final report or project   30%

Prepared by: Wang Suo

Faculty of Aerospace Engineering

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Matrix Theory**

COURSE CODE:

CREDIT POINTS: 2.5

CONTACT HOURS: 45

LEVEL: Postgraduate, 1st semester

DELIVERY: Lectures

Course Description:

The aim of this course is to introduce the key mathematical ideas in matrix theory, which are used in modern methods of data analysis, scientific computing, optimization, and merely all quantitative fields of science and engineering. While the choice of topics is motivated by their use in various disciplines, the course will emphasize the theoretical and conceptual underpinnings of this subject, just as in other (applied) mathematics course.

Course Outcomes:

This is a course about matrix, it focuses on diagonalization of matrices, norms of matrices, analysis of matrices and decomposition of matrices . The main topics covered will be a review of linear algebra. Upon successful completion of this course, the student will be able to:

1.   Gaining an understanding of diagonalization of matrices and its implications

2.   Knowing the norms and its applications

3.   Understanding the matrix analysis and its applications

4.   Knowing the QR decomposition, LU decomposition, and the singular value decomposition and its applications

Course Content:

1.   Review of linear algebra

    Systems of linear equations

    Matrices, vectors and their products

    Matrix algebra

    Rank of a matrix, linear independence

2.   Diagonalization of Matrices

        Eigenvalues and eigenvectors

        Diagonalization

        Jordan form

3.   Norms

        Norms of vectors

        Norms of matrices

        Applications

4.   Matrix Analysis

        Matrix series

        Matrix functions

        Matrix differential and integral

        Applications

5.   Matrix Decomposition

        LU decomposition

        QR decomposition

        The singular value decomposition

        Applications

TEXTBOOKS AND REFERENCE MATERIALS

1. Matrix Theory, Joel N. Franklin
2. Linear Algebra (8th Edition), Steven J. Leon

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Systems of linear equations	
2	2	Matrices, vectors and their products,Matrix algebra	
3	2	Rank of a matrix, linear independence	
4	2	Eigenvalues and eigenvectors	
5	2	Diagonalization	
6	2	Jordan form	
7	2	Summary	
8	2	Quiz 1	
9	2	Norms of vectors and matrices	
10	2	Applications	
11	2	Matrix series	
12	2	Matrix functions	
13	2	Matrix differential and integral	
14	2	Applications	
15	2	Summary	
16	2	Quiz 2	
17	2	LU decomposition	

18	2	QR decomposition	
19	2	The singular value decomposition	
20	2	Applications	
21	2	Summary	
22	3	General revision	
Total	45		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Quizzes	Two quizzes(5% each)	10%	After finishing the 2nd chapter and the 4th chapter
Class Participation	Attendance and Late	20%	
Assignment	Homework and report	15%	
Final Exam		55%	

Prepared by: Lin lin

      College of Science

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **SCIENTIFIC WRITING**

COURSE CODE:

CREDIT POINTS: 1

CONTACT HOURS: 18

LEVEL: Graduate, 2nd semester

DELIVERY: Lectures

This course teaches how to write a thesis for Master's Degree and scientific paper for publishing in scientific journals. It is intended to assist international post-graduate students attending Shenyang Aerospace University.

A thesis is a research report. The report concerns a problem or series of problems in a certain area of research and it should describe what was known about it previously, what work was done solving it, what does the results mean, and where or how further progress in the field can be made. A thesis is not an answer to an assignment question. One important difference between assignment and thesis is that the reader of an assignment is usually the one who has set it, and the readers of a thesis do not know what the "answer" is. So, it is necessary to describe the background, the literature, the assumptions and theories and the strengths and weaknesses of project. If the thesis is for a PhD, the university requires that it makes an original contribution to human knowledge: your research must discover something unknown.

There are both similarities and differences between scientific writing and literary writing and the writing done in other courses. Similarities include the need for attention to proper grammar, spelling, and punctuation, as well as the need for a clear, coherent structure. Grading of scientific writing takes all of these things into account, just as in other courses. Differences are matters of style. Scientific writing is dispassionate, factual recording. It uses language of prosaic words of certain meaning and is organized simply into precise phrases, clauses, sentences and paragraphs.

A critical aspect of the scientific process is the reporting of new results in scientific journals in order to disseminate that information to the larger community of scientists. Communication of your results contributes to the pool of knowledge within your discipline and very often provides information that helps others interpret their own experimental results. Most journals accept papers for publication only after peer review by a small group of scientists who work in the same field and who recommend the paper to be published (usually with some revision).

The <u>format and structure</u> presented here is a general one; the various scientific journals, and often times specific disciplines, utilize slightly different formats and/or writing styles. Mastery of the format presented here will enable students to adapt easily to most journal- or discipline-specific formats.

In this course, students will learn the scientific writing style and format, it is not sufficient, by itself, to make students an accomplished writer. This course focuses on structure and readability issues. It also teaches students the key elements to include in the various sections of a paper and the method of compiling figures, tables, and bibliographies.

Prepared by: Liu Yulin

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Modern Testing Technology**

COURSE CODE:
CREDIT POINTS: **3**
CONTACT HOURS: **54**
LEVEL: Graduate, 2st semester
DELIVERY: Lectures

Course Description:

This course is designed to introduce the basic methods and basic theory of design of modern test system based on computer all-sided systemically.

Main core of teaching

- Mastering the performance evaluation method of modern test system.
- Understanding of several typical structure of modern test .
- Knowing well the design method of modern test system composed of each hardware module, system test requirement design and construction of test system.
- Grasping the design method of intelligent testing software for modern test system.
- Holding measurement method of typical electric, magnetic quantities and method of building design, relevant test system.

  Mastering anti-interference design method of test system.

Prepared by: Yue Yumei

     Faculty of Aerospace Engineering

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Principle and Technology of Plasticity Moulding**
COURSE CODE:
CREDIT POINTS: 3.0
CONTACT HOURS: 54hs
LEVEL: Postgraduate, 1th semester
DELIVERY: Lectures

Course Description:

Principles and processes of sheet metal plastic forming are thoroughly addressed in this comprehensive reference for the practical and efficient use of sheet forming technologies. The principle variables of sheet forming, including the interactions between variables, are clearly explained, as a basic foundation for the most effective use of computer aided modelling in process and die design. Topics include stress analysis, formability criteria and materials for sheet forming. This course covers the latest developments in sheet metal forming technology including servo-drive presses and their applications, and advanced cushion systems in mechanical and hydraulic presses, concentrates on simple, practical engineering methods rather than complex theoretical and numerical methods to provide the students with usable approaches to sheet metal forming processes and die design.

Course Outcomes:

Upon completion of this course, the student would
1. Know the mechanisms of blanking, punching, bending, deep drawing, stretching, material economy, strip design, movement of sheet metal during stamping, and tool design.
2. Understand the phenomenon during sheet metal forming processes, such as work hardening, yielding, etc.
3. Basically know the calculation and structural design methods for various stamping die.
4. Have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Course Content:

The first part of this course deals with the fundamental aspects of the mechanical behaviour and basic characteristics of sheet metals, these are necessary to understand the performance of metals in sheet metal forming processes.

The second part presents the basic theory of plasticity and its specific application to sheet metal forming processes, including flow stress, yield criteria for ductile metals, stress-strain relations, etc.

The third part covers all aspects of forming sheet metal. A series of sheet metal operations would be introduced. Mechanics of various forming processes indicate ways in which the deformation, loads, and process limits can be calculated for press forming and stamping operations.

TEXTBOOKS AND REFERENCE MATERIALS

1. Sheet Metal Forming – Fundamentals by Altan Tayla, Published by ASM International, 2012
2. Sheet Metal Forming Processes and Die Design by Boljanovic , Vukota. Industrial Press Inc.
3. Mechanics of Sheet Metal Forming by Z. Marciniak, Second edition published by Butterworth-Heinemann, 2002.
4. A Text Book of Production Engineering by P.C.Sharma, S.Chand Publication.
5. Manufacturing Technology by P.N.Rao, Tata-McGraw-Hill.
6. Manufacturing Engineering and Technology by Kalpakjian and Schmid, Pearson Education,
7. Processes and Materials of Manufacture by Roy A.Lindberg, PHI.

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	4	Basic concept and classification of metal forming Common forming processes Application to design	
2	4	Tensile test Effect of properties on froming Other mechanical tests	
3	4	Uniaxial tension General sheet processes Yielding in plane stress The flow rule Work of plastic deformation	
4	4	Work hardening hypothesis Effective stress and strain functions Shearing process Mechanics of shearing	
5	4	Shearing forces Blanking and piercing Blanking and shearing mechanism Blanking and shearing clearance	
6	4	Punch force Material economy Shaving	
7	4	Introduction of bending Mechanics of bending Movement of bending	

8	4	Bending forces Bend allowance Springback Clearance	
9	4	Mechanics of deep drawing Deep drawability Forces Blank calculation for symmetrical shell	
10	4	Determine shape of blank for nonsymmetrical shell Drawing practice Various forming processes Stretch forming Nosing	
11	4	Expanding Dimpling Spinning Flexiable die forming	
12	4	Basic classifications and components Examples of Die Design	
Total	48		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Attendance and class participation	According to the lecturer's record	20%	
Assignments	Two assignments	20%	
Midterm Quiz		20%	
Final Exam		40%	

Prepared by: Zhang Lingyun

             Faculty of Aeronautical Engineering

Date: 2015.05

COURSE OUTLINE

COURSE TITLE:	**Computer aided aircraft shapes design technique**
COURSE CODE:	
CREDIT POINTS:	2
CONTACT HOURS:	36
LEVEL:	Postgraduate
DELIVERY:	Lectures

Course Description:

This course focuses on understanding knowledge about curves & surfaces shaping principle in digital aircraft manufacturing domain. Main contents cover computer aided geometric design, geometric transformation of 2D and 3D shapes, digital measurement for free form shape, Fugerson curves & surfaces, interpolating and approximating a shape with random distributed points, Bezier method, B_spline technique, and NURBS curves and surfaces, et al.. Integrated exercises and laboratories provide the opportunity to explore these concepts through programming with matlab, including fitting of curves and surfaces that derived from aircraft shapes, out put 3D coordinates of points from digital model of the free from shapes and simple shapes, create curves and surfaces based random organized data, construct digital model of mechanical product with special software.

Course Outcomes:

After successful completion of this course, the student will be able to:

1. Grasp key methods of geometric transformation of 2D and 3D shapes, from one reference system to another reference system.
2. Carry out digital measurement for free form shape, create and organize the shape data, out put 3D coordinates of points from digital model of the free from shapes and simple shapes.
3. Understand the manufacturing procedure of aircraft assembly, under the digital mode and analysing mode.
4. Preform fitting of curves and surfaces of aircraft shapes with randomly distributed points on them.
5. Design curves and surfaces based random organized data, construct digital model of mechanical product with special software.

Course Content:

Introduce manufacturing procedure and coordinate scheme of aircraft assembly, from the original design material to the final product, under the digital mode and analysing mode.

Describe foundational contents of computer geometric graphics, including geometric transformation of 2D and 3D shapes from one reference system to another reference system, for purpose of organization and preparation of design elements.

Discuss key knowledge in computer aided geometric design, for purpose of representing the shape of aircraft with mathematic functions, and reconstructing digital model of the aircraft and the jag.

Learning methods for acquiring shape data of the aircraft construction, by means of digital measuring devices, and creating and preparing data of these shapes.

Grasp reconstruction geometric shapes of both curves and surfaces of the aircraft components, by means of special CAD soft ware, according to the data sets derived from the digital measuring process, and from the original design resources.

TEXTBOOKS AND REFERENCE MATERIALS

1. Barsky B. A.. Computer graphics and geometric modelling using Beta splines, Springer-Verlag, Heibelberg, 1998. ISBN:8507870977
2. Shi F. Z.. CAGD & NURBS. High Education Publisher, 2001, ISBN:7040099349.
3. Piegl L., Tiller W.. The NURBS book. Berlin Heidelberg: Springer-Verlag, 1995. ISBN:8390185997

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction	
2	2	Core contents of CAGD	
3	2	Analogue manufacturing procedure	
4	2	Digital manufacturing procedure	
5	4	2D Geometric transformation	
6	2	3D Geometric transformation	
7	2	Parametric polynomial curves & surfaces	
8	2	Shape fitting	
9	2	Bezier curves & surfaces	
10	2	B-spline curves & surfaces	
11	4	Geometric invariability	
12	2	Digital measurement techniques	
13	2	Data preparation	
14	2	Reconstruction of curves & surfaces	
15	2	Create digital model	
16	2	Final exam	
Total	32		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Quiz	Three quizzes (15% each)	70%	
Problem Set	Five problem sets	30%	

Prepared by: Qu Xuejun

  Faculty of Aerospace Engineering

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Modern Machinery Design Methods and Theories**

COURSE CODE:

CREDIT POINTS: 3.5

CONTACT HOURS: 54

LEVEL: Postgraduate, 1st semester

DELIVERY: Lectures and presentations

Course Description:

Modern machinery design is totally different from traditional machinery design. Design develops with time, traditional design and modern design are used to indicate the design in the past and the design at present respectively. In this course, the traditional machinery design methods and theories will be reviewed first, then the comparison of traditional and modern design will be discussed, lastly but importantly some modern machinery design methods and theories will be introduced, such as optimization design, finite element design, reliability design, strength and fatigue theories and so on. It plays an important role in cultivating the creative ability in the field of machine industry.

Course Outcomes:

Upon successful completion of this course, students will be able to:

1. Know the basic knowledge involved in traditional and modern machinery design respectively.
2. Know the difference between modern design and traditional design
3. Understand and master the basic theories and skills used and required in the introduces modern deign methods and theories, such as optimization design, finite element design, reliability design, strength and fatigue theories and so on.
4. Design some mechanical components using of one or some of the above methods or theories.

Course Content:

This course mainly includes following contents:

1. Introduction and principles of modern machinery design
2. Review of some traditional design theories and methods
3. Introduction of optimization design
4. Introduction of finite element design
5. Presentation on own project design using one of these two methods
6. Strength and fatigue theories
7. Presentation on one or some of the strength and fatigue theories
8. Reliability design
9. Final report or exam about reliability design

Textbooks and Reference Materials:

The teacher will write his/ her own teaching plan and distribute the materials to students.

Type of Assessment and Weighting:

1. Attendance   20% (5% for part 1, 5% for part 2 and 10% for part 3)
2. Presentation 1   25% (for part 1)
3. presentation 2   25% (for part 2)
4. Final report or exam   30% (for part 3)

Prepared by: He Bo

            College of Mechanical and Electrical Engineering

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Modern Manufacturing Techniques**
COURSE CODE:
CREDIT POINTS: 3
CONTACT HOURS: 54
LEVEL: Graduate, 2nd Semester
DELIVERY: Lecturers

Course Description:

"Modern Manufacturing Techniques" is a professional course of numerical control technology specialty. This course is a highly practical course, and with the continuous development of microelectronics technology, computer communication, network, information, automation and other industries in the field of manufacturing industry, the wide application and development of new manufacturing mode, the connotation and composition of modern manufacturing technology is constantly changing.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

1. Expand the students in the traditional mechanical processing methods of knowledge, for the students of the mechanical structure design, process method selection and process layout and solve the special technical problems to provide a more broad thinking and choice space.
2. Develop and investigate students' comprehensive ability to use the knowledge of physics, chemistry, electrical engineering, automatic control, mechanical manufacturing and so on. Master the characteristics and application of modern manufacturing techniques, and focus on the basic principle, process characteristics and application range of EDM and EDM.
3. This course not only can broaden the knowledge of students, but also has the profound significance of cultivating high quality and innovative talents.

Course Content:

1. Principles and selection of control apparatus;
2. Three-phase asynchronous motor starting, speed, braking and other basic link of the control line;
3. PLC ladder diagram and programming language;
4. Methods for reading analysis of various control circuits;
5. Electrical wiring diagram of the process design ideas and the basic composition of the NC system;
6. The basic structure of the machine tool, the movement of the machine and the relationship between the mechanical and electrical.

TEXTBOOKS AND REFERENCE MATERIALS

1. *Advanced manufacturing technology*，by Tang Yiping, Press: Machinery Industry Press, Publication date: 2004-2-1,ISBN: 9787111108030
2. *21st Century Manufacturing,* by Paul Kenneth Wright, Press: Prentice Hall, Publication date: 2000/08/03, ISBN9780130956019

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	1. Manufacturing, manufacturing systems and manufacturing systems; 2. Connotation and technology of modern manufacturing technology; 3. Classification of modern manufacturing technology and development trend of modern manufacturing technology;	
2	10	1. The basic principles and classification of electric spark mechanic, the machining mechanism of electric spark, the basic rule of electric spark mechanic; 2. Principle, characteristics and application range of the electric discharge machining; 3. The principle and classification of electrochemical machining, the characteristics of electrolytic grinding, and the characteristics of electrolytic grinding; 4. The principle and classification of laser processing and ultrasonic processing and the use of processing characteristics; 5. Understanding of other special processing methods.	

3	10	1.Precision and ultra precision machining, and the characteristics of processing technology;
		2. Various precision and ultra precision machining method;
		3. The characteristics of a variety of machining methods are compared with cylindrical gears;
		4. The development direction and goal of precision machining and ultra precision machining.
4	8	1. Computer aided design and manufacturing related concepts, software and hardware components;
		2. Modeling and molding technology of computer aided design;
		3. System types and working principle of computer aided process;
		4. Computer aided design and manufacturing integration technology and key factors.
5	12	1. Generation and development of flexible manufacturing system;
		2. The composition and main functions of the flexible manufacturing system;
		3. FMS automatic processing system for equipment requirements;
		4. FMS on the control of the processing system and other requirements of the project;
		5. Material conveying system; tool management system, the composition and monitoring and information management;
		6. Classification and performance characteristics of robots;
		7. FMS information flow model, elements,

		relations and characteristics; 8. FMS design key points and design content, design steps.	
6	8	1. Definition of modern manufacturing system; 1. Three flow structure of manufacturing system ; 3. Characteristics and key technologies of the future manufacturing industry; 4. CIMS concept, composition and hierarchical control mode; 5. System design method, steps and evaluation; 6. Agile manufacturing and concurrent engineering concept; 7. Intelligent manufacturing and virtual manufacturing; 8. On time production and lean production; the principle of rapid prototyping technology.	
7	4	1. CAD/CAM application in engineering practice; 2. FMS application in manufacturing process.	
Total	54		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Attendance and class participation	According to the lecturer's record	20%	
Assignments	Two assignments	20%	
Midterm Quiz		20%	
Final Exam		40%	

Developed by:
Date: 2105.10

COURSE OUTLINE

COURSE TITLE: Structure Analysis Based on Finite Element Method

COURSE CODE:

CREDIT POINTS: 2

CONTACT HOURS: 32

LEVEL: Postgraduate, 1st semester

DELIVERY: Lectures

Course Description:

structure analysis based on finite element method is the main course of mechanical and aerospace engineering, that including the establishment of mechanics model and the numerical solutions of systems of linear equations of structure design, and It is the modern design with a strong theoretical and practical calculation method.

This course focuses on cultivating graduate students the actual reasonable structure discretization method and the ability to use computers to solve engineering problems, and lays the foundation for solving practical problems in the field of mechanical and aerospace field and scientific research later.

Course Outcomes:

Upon successful completion of this course, students will be able to:

By introducing the basic theory of finite element, let students master different geometry and mechanical characteristics of engineering structure with the finite element model and analysis method, and then they can choose a suitable mechanics analysis model according to the practical problems , to determine the strength, stiffness and stability analysis of principles and methods.

This course introduces students to the use of ANSYS software, so that the students can skillfully use ANSYS software to analyse simple engineering structures stress, strain, displacement calculation and the basic dynamics.

Course Content:

This course mainly includes following contents:

1. Introduce the basic thought and basic steps of finite element method, the finite element method of engineering application, the basic equations of elasticity, energy variational principle and the principle of virtual work.

2. Link structure finite element method analysis: Including local coordinate system of the link element analysis, the overall analysis of link structure, the equivalent node load and boundary conditions, and ANSYS example.

3. Plane finite element method: Including the finite element model of plane and unit division, plane triangle element, plane rectangular element, and ANSYS example.

4. Spatial beam element of finite element method: Including the finite element model of beam element and unit division, the use of different types of beam element, and ANSYS example.

5. 3D finite element method: Including 3D stress state analysis, introducing the simple tetrahedral element of 3D, The characteristics of the axisymmetric problem and axisymmetric problem of simple triangular elements, and ANSYS example.

6. Structure finite element dynamic analysis: Including the establishment of the dynamic equation and simplified method of the structure, engineering structure low order natural frequency and modal analysis, and ANSYS example.

Textbooks and Reference Materials:
1 Introduction to Finite Elements in Engineering (Third Edition) , (USA) Tirupathi R. Chandrupatla and Ashok D. Belegindu.
2 Softwares about Finite Element Method: ANSYS/Partron/Nastran.
Type of Assessment and Weighting:

1.	Attendance	35%
2.	Assignment	35%
3.	Project work	30%

Prepared by: Zhang Daqian

       Faculty of Aerospace Engineering

Date: 2015.05

<h1 style="text-align:center; color:#1F7FC4;">COURSE OUTLINE</h1>

COURSE TITLE: **Robotics**

COURSE CODE:
CREDIT POINTS: 2
CONTACT HOURS: 32
LEVEL: Graduate, 1st semester
DELIVERY: Lectures

Course Description:

This course is designed to provide students a more rigorous understanding of industrial robotics, which is extensively used in modern industrial automation area. The course starts with the origin and development of the robot, followed by basic constitutes and structures, rigid body pose descriptions, and coordinate transforms. After covering these basics, the course comes with robotic actuators and sensors, robot geometric design, differential design and dynamical design.

Course Outcomes:

Upon a successful completion of this course, students will be able to:

1. Understand the origin and develop of the robot.
2. Understand the basic theory of industrial robotics.
3. Understand the principle of robotic actuators and sensors.
4. Develop the ability of robot design.

Course Content:

This course mainly includes following contents:

Introduction:

1. The research field of robotics and its history.
2. Components and structures of robots (symbolic representation of robots; degrees of freedom and workspace; common kinematic arrangements and classification of robots; robotic systems).

Kinematics:

1. Rigid motions and homogeneous transformations (representing positions and rotations; homogeneous transformations).
2. Forward kinematics (kinematic chains; Denavit-Hartenberg Representation).
3. Inverse kinematics (the general inverse kinematic problem; kinematic decoupling; inverse position and orientation).

Differential motions:

1. Linear and angular velocity.
2. Derivation of the Jacobian.
3. Singularities.

4. Inverse velocity and acceleration.
5. Redundant robots

Dynamic and path planning

1. The Euler-Lagrange equations.
2. Properties of robot dynamic equations.
3. Newton-Euler formulation.
4. Path planning and collision avoidance (path planning using configuration space potential fields; path planning using workspace potential fields).
5. Trajectory planning (trajectories for point to point motion; trajectories for paths specified by via points).

Actuators:

1. Demands for robotic actuators.
2. Classification of robotic actuators.
3. Typical robotic actuators (servo motors and stepping motors; hydraulic cylinders and motors; pneumatic cylinders and motors).

Sensors:

1. Classification of robotic sensors.
2. Interior sensors (potentiometers; encoders).
3. Exterior sensors (vision sensors; distance sensors; force sensors; tactile sensors).

Textbooks and Reference Materials:

Introduction to Robotics: Analysis, Systems, Applications by Saeed B. Niku

Type of Assessment and Weighting:

1.	Attendance	30%
2.	Tests	20%
3.	Homework	20%
4.	Final report or project	30%

Prepared by: Ye Changlong

College of Mechanical and Electrical Engineering

Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Advanced Computer Network**
COURSE CODE:
CREDIT POINTS: 3
CONTACT HOURS: 54(48 lectures + 6 labs)
LEVEL: postgraduate, 1th semester
DELIVERY: Lectures, Lab Experiments

Course Description:

This is a postgraduate level course on advanced computer communication and networking technologies. The course involves reading, lecture, discussion, and project section. Here history of the Internet are overviewed. TCP/IP architecture, TCP congestion control, Multicast, QoS Routing and wireless TCP are involved. There are some prerequisites for postgraduates to learn this course. First, programming experience in C or C++ are necessary. Secondly, using those program development tools skillfully are needed, such as editors, compilers, linkers and debuggers, et. At last, learning the knowledge of data structures are important. Knowledge of arrays, stacks, queues, lists, and binary trees should be learned first.

Course Outcomes:

Upon successful completion of this course, the postgraduates will be able to:
1. Read and give their paper reviews fast and easily.
2. Understand various technical and research issues of computer network in depth.
3. Finish their presentation about some research topics more confident.

Course Content:

The course involves both a reading/lecture/discussion component and a project component. We will read papers on various aspects of advanced computer networking: LAN/WAN technologies, congestion/flow control, self-similar traffic analysis, queuing theory, link scheduling, routing, internetworking, multicast, wireless technologies, quality of services, and peer-to-peer networks. Various technical and research issues involved will be studied in depth.

TEXTBOOKS AND REFERENCE MATERIALS

1. Computer Networks: A system approach, latest edition, Larry L. Peterson, Bruce S. Davie, Morgan Kaufmann.
2. High-speed networks and Internets: performance and quality of service, 2nd Ed, William Stallings, 2001. Computer Networks, 4th Ed, Andrew

S. Tanenbaum, Prentice Hall, 2002.

3. Introduction to Wireless and Mobile Systems, D. Agrawal, Q. Zeng, Thomson Brooks/Cole, 2002.

4. Computer Networking: A top-down approach, 4th Ed. Kurose & Ross, Pearson, 2010.

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction	
2	2	History of the Internet	
3	1	Paper review: End-to-end Arguments in System Design	
4	2	Taxonomy of Communication Networks	
5	1	Router Architecture in Packet-Switching Networks	
6	1	Paper review: TCP Congestion Control	
7	3	TCP Congestion Control	
8	1	Paper review: A Protocol for Packet Network Interconnection	
9	3	Layering and End to End Arguments	
10	1	Paper review: Integrated Services in the Internet Architecture: an Overview	
11	3	TCP/IP Architecture	
12	4	Multicast	
13	4	QoS Routing	
14	1	Service Model	
15	3	Integrated Services	
16	1	Paper review: Security Problems with the Internet Architecture	
17	3	Wireless TCP	
18	4	Routing Behavior in the Internet	
19	4	Router Support for Congestion Control	

20	2	Discussion of Term Paper	
21	2	Final exam	
Total	48		

Practicals and Experiments

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction to Network Experiments	
2	2	Connection of 2 levels Network	
3	2	Using Router and Gateway to Connect 3 levels Network	
Total	6		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Paper review	Reading designated paper after class	30%	
project	Experiments in the lab	20%	
Term paper	Submit research paper	30%	
exam	Final exam	20%	

Prepared by: Wu Jiehong
           College of Computer

Date: 2015.05

COURSE OUTLINE

COURSE TITLE:	**Embedded Systems**
COURSE CODE:	
CREDIT POINTS:	3.0
CONTACT HOURS:	54(38 lecture hours + 16 lab hours)
LEVEL:	Graduate
DELIVERY:	Lecture + hands-on experiment

Course Description:

Embedded system is a hands-on course where the latest microcontrollers will be used to implement embedded systems. Lectures will cover the theory behind microcontroller architecture, programming, and interfacing and lab projects will back up that theory with actual implementations using microcontrollers. Students will be expected to spend a considerable amount of time outside of lecture, in the lab (or elsewhere) experimenting with a microcontroller development board and building an embedded system.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

1. gain the basic understanding of embedded systems design
2. learn the basic theory behind microcontroller architecture
3. develop an in-depth understanding of the operation of microcontrollers
4. program and interface the microcontroller

Course Content:

- Introduction to embedded systems
- Basic 8051 core Architecture
- 8051 instruction set
- 8051 Assembly and C Language Programming
- Interfacing of LEDs and switches with 8051
- Interfacing of 7-segment displays with 8051
- Handling of Timers, UART and Interrupts of 8051
- Interfacing of LCD with 8051
- Interfacing of Stepper with 8051
- Interfacing of ADC and DAC with 8051
- New technologies in microcontrollers
- ARM microcontroller architecture
- Embedded systems based on ARM Core and embedded OS

TEXTBOOKS AND REFERENCE MATERIALS

1. Subrata Ghoshal. 8051 Microcontroller : Internals, Instructions, Programming & Interfacing, 2010, Pearson.
2. Muhammad Ali Mazidi, Rolin D. McKinlay, Janice G. Mazidi. The 8051 Microcontroller: A Systems Approach, Pearson New International Edition, 2013, Pearson.
3. Muhammad Ali Mazidi, Janice Mazidi, Janice Gillispie Mazidi. The 8051 Microcontroller and Embedded Systems, 2nd edition, 2005, Prentice Hall.
4. I. Scott MacKenzie, Raphael Chung-Wei Phan. The 8051 Microcontroller, 4th edition, 2006, Prentice Hall.

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction to embedded systems	
2	4	Basic 8051 core Architecture	
3	4	8051 instruction set	
4	6	8051 Assembly Language Programming	
5	1	Quiz 1	
6	2	Interrupt system of 8051	
7	2	8051 Timers	
8	2	8051 UART	
9	4	keyboards and display interfacing	
10	4	ADC and DAC interfacing	
11	1	Quiz 2	
12	2	New technologies in microcontrollers & ARM microcontroller architecture	
13	2	Introduction to Embedded systems based on ARM Core and embedded OS	
14	2	Final exam	
Total	38		

Practicals and Experiments

Serial No.	Contact Hours	Topic	Remark
1	2	How to create and debug a project in Keil IDE	
2	2	8051 Assembly language programming	
3	2	8051 I/O port programming	
4	2	8051 external interrupts programming	
5	2	8051 timers programming	
6	2	8051 UART programming	
7	2	keyboards and display Interfacing	
8	2	ADC and DAC Interfacing	
Total	16		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Quiz	2 quizzes	20%	
Lab	8 labs	20%	
Final exam	2 hours closed exam	60%	

Prepared by: Pan Zhuojin

        College of Computer

Date: 2015.05

COURSE OUTLINE

COURSE TITLE:	**Distributed Operating System**
COURSE CODE:	
CREDIT POINTS:	3.0
CONTACT HOURS:	54 (54 lectures hours)
LEVEL:	Graduate
DELIVERY:	Reports

Course Description:

This course provides an examination of the principles of distributed operating systems in general. Covered topics include introduction to distributed system, distributed communication, synchronization in distributed systems, processes and processors in distributed Systems, distributed file system, other topics such as architecture, code migration, naming etc.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

1. Understand the design and implementation of distributed systems.
2. Understand various areas of research in distributed systems and mobile computing systems.
3. Design and implement fault tolerant distributed systems.
4. Pursue deep independent research in distributed systems.

Course Content:

Introduction to distributed system, including course goals, hardware concept, software concept, transparency, flexibility, reliability, openness, scalability.

Distributed communication, including client/server model ,remote procedure call, group communication.

Architecture, including architecture style. centralized architectures, decentralized architectures, hybrid architectures.

Synchronization in distributed systems, including time synchronization, mutual exclusion and election algorithms, atomic transactions, deadlock in distributed systems.

Processes and processors in distributed systems, including threads, system model, processor allocation, fault tolerance, real time distributed system.

Virtualization ,the role of Virtualization, architectures of virtual machines.

Code migration , including reasons for migrating code ,models for code migration.

Naming, the concept of name, identifier, address ,name resolution approaches

Distributed file system, including file service interface the directory server interface semantics of file sharing cache consistency replication and update protocols.

TEXTBOOKS AND REFERENCE MATERIALS

1.Andrew Tannenbaum and Maarten van Steen, Distributed Systems: Principles and Paradigms 2nd edition ,Prentice Hall(2007.) ISBN 7-5053-5487-6.

2.A. S. Tanenbaum, Distributed Operating Systems, Prentice-Hall (1995)   ISBN 0-13-219908-4 .

3. D. L. Galli, Distributed Operating Systems, Prentice-Hall (2000)   ISBN 0-13-079843-6

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction to distributed system: course goals, hardware concepts, software concepts.	
2	2	Transparency, flexibility, reliability, openness, scalability.	
3	3	Client/server model	
4	3	Remote procedure call	
5	2	Group communication	
6	2	Architecture style. centralized architectures	
7	3	Decentralized architectures, hybrid architectures.	
8	3	Time synchronization	
9	3	Mutual exclusion and election algorithms	
10	3	Atomic transactions	
11	2	deadlock in distributed systems	
12	2	Threads	
13	2	system model for processor allocation	
14	2	processor allocation algorithms	
15	3	Fault tolerance	
16	3	Real time distributed system	
17	2	Virtualization	
18	3	Code migration	
19	3	Naming	

20	2	File service interface the directory server interface	
21	2	Semantics of file sharing, cache consistency	
22	2	replication and update protocols.	
23	2	Final exam	
Total	56		

Practicals and Experiments

Serial No.	Contact Hours	Topic	Remark
1	3	Stress Transformations and Pressure Vessels	
2	3	Origins of Elasticity and Plasticity: The Bubble Raft	
3	3	Plastic Deformation from the Micro- to Nano-scale	
4	3	Structural Origins of the Mechanical Properties of Materials	
Total	12		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
Quiz	Three quizzes (15% each)	45%	
Problem Set	Seven problem sets	25%	
Lab	Four labs	30%	

Prepared by: Shi Xiangbin

         College of Computer

Date: 2015.05

COURSE OUTLINE

COURSE TITLE:	**Financial Management**
COURSE CODE:	
CREDIT POINTS:	3
CONTACT HOURS:	54
LEVEL:	Postgraduate, 1st semester
DELIVERY:	Lectures

Course Description:

This course refers to the efficient and effective management of money (funds) in such a manner as to accomplish the objectives of the organization. It is the specialized function directly associated with the top management. The significance of this function is not only seen in the 'Line' but also in the capacity of 'Staff' in overall administration of a company. It has been defined differently by different experts in the field. It includes how to raise the capital, how to allocate it i.e. capital budgeting. Not only about long term budgeting but also how to allocate the short term resources like current assets. It also deals with the dividend policies of the share holders.

Course Outcomes:

Upon successful completion of this course, students will be able to: produce past-oriented reports, it is based on generally accepted accounting principles and generally accepted accounting practices compliant with International Financial Reporting Standards/US GAAP. In order to prepare the financial accounts/reports an entity has to comply with these GAAPs and gaaps.

Course Content:

This course mainly includes following contents: financial capital maintenance in either nominal monetary units (Historical Cost Accounting) during low and high inflation and deflation or units of constant purchasing power (Constant Purchasing Power Accounting) as required in IFRS during hyperinflation. Financial accounting focuses on the reporting of an organization's financial information to external users of the information, such as investors, regulators and suppliers either based on the HCA model or the CPPA model. It measures and records business transactions and prepares financial statements for the external users in accordance with generally accepted accounting principles (GAAP).GAAP, in turn, arises from the wide agreement between accounting theory and practice, and change over time to meet the needs of decision-makers.

Textbooks and Reference Materials:

The teacher will write his/ her own teaching plan and distribute the materials to students.

Type of Assessment and Weighting:

1. Attendance   30%

2. Final Tests   70%

Prepared by Wang Ke,   Date: 2015.05

COURSE OUTLINE

COURSE TITLE: **Enterprise Finance**
COURSE CODE:
CREDIT POINTS: 3
CONTACT HOURS: 54 Hrs
LEVEL: Postgraduate, 1st semester
DELIVERY: Lectures and Presentations

Course Description:

Corporate finance is one of the compulsory courses in finance. The purpose of the course is the requirement of students' mastery of corporate finance theory, understanding the company's financing and investment ways and kinds, grasping the company's investment and financing income and the basic methods of risk analysis.

Course Outcomes:

Upon successful completion of this course, students will be able to:

1. master company financial content and basic idea.

2. master the financing mode and financing structure, capital structure, financing risk and the lever principle.

3. understand the financing decision theory.

4. understand the equity financing, debt financing and operation rights exchange financing operation.

5. understand the solvency management and physical assets investment operation and financial assets investment operation

Course Content:

This course mainly includes the definition and the classify of corporate finance. As the basis of this course, we should be very familiar with the three financial statements, the balance sheet, profit statement and cash flow statement. The time value of money as the basis and the key concepts of the whole book, we must master the calculation about the future value and the present value. In investment decision we should grasp the NPV IRR AAR PP and PI methods. Financing decision-making we will learn to calculate the capital cost of various financing methods and the total capital cost.

TEXTBOOKS AND REFERENCE MATERIALS

Textbooks:

Corporate Finance. Wu Bing. Textbook in school, 2011

Reference Materials:

1. Corporate Finance. Yue Jun, Feng Rixin. Economic science press, 2003

2. Corporate Finance. Ouyang Lingnan. East-north university of finance and economic press, 2002

3. Corporate finance. Qian Haibo, Jia Guojun. People's post and communications press, 2003

4. Corporate finance. Stephen A.Ross Randolph w. westerfield Jeffrey F. Jaffe. Machinary industry press, 2005

COURSE TEACHING PLAN
Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Overview of Corporate Finance	
2	2	The balance sheet	
3	2	The statement of cash flow	
4	2	The income statement	
5	2	The net working capital	
6	2	Net present value	
7	2	The payback period	
8	2	The average accounting return	
9	2	The internal rate of return	
10	2	The profitable index and quiz 1	
11	2	The practice of capital budgeting	
12	2	Long-term financing	
13	2	Capital structure	
14	2	Midterm Review	
15	2	Midterm Exam	
16	2	Common stock	

COURSE TEACHING PLAN
Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
17	2	Preferred stock	
18	2	Patterns of financing	
19	2	Maximizing firm value versus maximizing stockholder interests	
20	2	The basic forms of acquisitions	
21	2	Accounting for acquisitions and quiz 2	
22	2	Determining the synergy from an acquisition	
23	2	Source of synergy from acquisitions	
24	2	Financial distress	
25	2	Defensive tactics	
26	2	Summary and Reviews	
27	2	Q&A	
Total	**54**		

Type of Assessment

Assessment	Style	Weighting	Due Date
Attendance and Assignment		20%	
Quiz	Two Quizzes (10% each)	20%	
Midterm Examination		20%	
Final Examination		40%	
Total		**100%**	

Prepared by: Bing Wu
                Associate Professor of School of Economics and Management
Date: May, 2015

Approved by: School of Economics and Management
Date: June, 2015

COURSE OUTLINE

COURSE TITLE: **SPSS Statistical Analysis**
COURSE CODE:
CREDIT POINTS: 3
CONTACT HOURS: 54 Hrs
LEVEL: Postgraduate, 1st semester
DELIVERY: Lectures

Course Description:

SPSS is a comprehensive system for analyzing data. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts, and plots of distributions and trends, descriptive statistics, and complex statistical analyses.   The course is designed to provide an intensive introduction to the Statistical Package for the Social Sciences (SPSS).The training combines lecture and hands-on laboratory sessions.   The course is recommended for faculty members, graduate students,   business analysts and other researchers who want to enhance their data analysis capability.

Course Outcomes:

Upon successful completion of this course, the student will be able to:
1. Students will learn the process of survey research;
2. Students will learn how to make questionnaire design;
3. Students will practice presentation research;
4. Students will write an essay using empirical study by SPSS.

Course Content:

The first chapter introduction is about the basic environment of SPSS and demonstrate a typical session, like how to start SPSS. And it will be followed by data management, table and chart, t family analysis, anova analysis, cluster analysis, factor analysis, regression analysis. In this class we also will talk about survey research, questionnaire design and sampling. With these knowledge require students finish their investigation. There will be two presentations that is assigned in advance. Students should prepare presentations with ppt. The ppt. should be submitted, and the marks of the presentation will consider both the expression of the students in the class and the contents of ppt. Therefore, students should prepare presentations carefully and actively.

TEXTBOOKS AND REFERENCE MATERIALS

1. SPSS® 13.0 Brief Guide
2. Fowler, F. J., Jr. Survey Research Methods, 2nd ed. Newbury Park, CA: Sage, 1993.

COURSE TEACHING PLAN
Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	General introduction	
2	2	Data enter and data clean	
3	2	Data editor (1)	
4	2	Data editor (2)	
5	2	Creating and editing pivot table	
6	4	Creating and editing charts	
7	4	Descriptive analysis	
8	4	T family analysis	
9	4	Anova analysis	
10	4	Cross-tabs analysis	
11	4	Principle Component Analysis	
12	4	cluster analysis	
13	4	Regression Analysis	
14	4	Overview of the research process	
15	4	Introduction to Questionnaire Design	
16	2	Introduction to Sampling	
17	2	Presentation	
Total	**54**		

Type of Assessment

Assessment	Style	Weighting	Due Date
Attendance and performance		20%	
presentation		20%	
Assignment		20%	
Paper		40%	
Total		**100%**	

Prepared by: Xianying XU
                 Associate Professor of School of Economics and Management
Date: May, 2015

Approved by: School of Economics and Management
Date: June, 2015

COURSE OUTLINE

COURSE TITLE:	**International Commercial Law and Practices**
COURSE CODE:	
CREDIT POINTS:	2
CONTACT HOURS:	36 Hrs
LEVEL:	Postgraduates, 1st semester
DELIVERY:	Research Course

Course Description:

International Commercial Law and Practice for postgraduate students major in business management is a technical fundamental course on law. In this course we will introduce the basic principles of international commercial law. We will learn how to create different business organizations, and how to manage your business as a director. Still we will learn important documents drafting in business operation, especially how to make a valid contract, and how to minimize the risk of business contract.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

1. Have fundamental knowledge about the International commercial law regulations, especially in legal organizations, international contracts.
2. This course will focus on training the students' abilities on solving real problem in business management.
3. Obtain the ability to draft legal documents needed in business management.
4. Have ability to make contracts and performance contracts effectively.

Course Content:

1. Introduction of International commercial law

---The definition of international business law

---Sources of international business law

---Civil law system and Common law system

2. Business Organization law

---Partnership law

   What is partnership?

   Partnership agreement

   How to set up a partnership

   Rights of partners

   Limited partnership

---Law of Corporation

   How to create a Corporation

Corporation management

Share holder's rights

--- How to draft the documents when create a company

3. Contract law

---Formation of contract

Offer and acceptance

---Complete a contract

How to make a contract

The requirement of a valid contract

---Performance of contract

How to minimize the performance risk

Remedies for breach of contract

TEXTBOOKS AND REFERENCE MATERIALS

1. International Business Law(5th Edition) Ray August, China Machine Press
2. Selected Cases and Readings on International Business Law, Xu binqian, University of International Business and Economic Press.
3. International Business Law, Gu Baizhong, Shanghai Education Press.

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	1	The definition of international commercial law	
2	1	Sources of international commercial law	
3	2	Civil law system and Common law system	
4	2	Case discussion	
5	2	As a partner how to set up a partnership	
6	4	Partnership agreement	
7	2	Case discussion	
8	4	How to create a company	
9	2	Draft documents of a company	
10	2	Case discussion	
11	4	Formation of contract	
12	2	How to complete a valid contract	
13	2	Case discussion	
14	2	Performance of a contract	
15	2	Remedies of breach a contract	
16	2	Discussion on legal system in students own home nations	
Total	**36**		

Type of Assessment

Assessment	Style	Weighting	Due Date
Average Grade & Attendance	Attendance record	20%	
Presentations	Presentations before each class	20%	
Discussions	Class discussion during the class	20%	
Final exam	Research work	40%	
Total		**100%**	

Prepared by: Ning SUN
                Associate Professor of School of Economic and Management
Date: May, 2015

Approved by: School of Economics and Management
Date: June, 2015

COURSE OUTLINE

COURSE TITLE: **Design and Management of Supply Chain**
COURSE CODE:
CREDIT POINTS: 2
CONTACT HOURS: 36 Hrs
LEVEL: Postgraduate, 1st semester
DELIVERY: Lectures, Case studies

Course Description:

For many reasons, interest in logistics and supply chain management has grown explosively in the last few years. This interest has led us to analyse their supply chains. In most cases, however, this has been done based on experience and intuition; very few analytical models or design tools have been used in this process.

To this end, besides of presenting and explaining concepts, insights, practical tools, and decision support systems important for effective management of the supply chain in this course, analysis and insight will be improved by case studies, numerous example, and discussion questions as well. Furthermore, we will also present state-of-the-art models and solution methods important in the design, control, operation, and management of supply chian systems.

In this course, many classic and new case studies, numerous examples as well as in-depth analyses of some of the technical issues involved in inventory management, network design, and strategic partnering, to name a few.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

1. Identify key issues and challenges in supply chain management.
2. Explain basic concepts and methods involved in designing and managing the supply chains.
3. Describe the models and problem-solving tools important for analyzing and optimizing the supply chains.
4. Apply modeling skills and problem-solving tools to real-world cases in supply chain management, with emphasis on how to find a balance between total cost and service level.
5. Make a research on some of issues in supply chain management, develop their capability of finding interesting subjects, searching for useful resources, getting approaches to problems.

Course Content:

We will introduce some of the supply chain management issues that we discuss in much more detail throughout the remaining chapters. These issues span a large spectrum of a firm's activities, from the strategic through the tactical to the operational level:

The strategic level deals: this includes decisions regarding product design, what to make internally and what to outsource, supplier selection, and strategic partering as well as decisions on the number, location, and capacity of warehouses and manufacturing plants and the flow of material through the logistics network. The tactical level: includes decisions that are typically updated anywhere between once every quarter and once every year. These include purchasing and production decisions, inventory policies, and transportation strategies, including the frequency with which customers are visited. The operational level: refers to day-to day decisions such as scheduling, lead time quotations, routing, and truck loading.

Below the course will introduce and discuss some of the key issues, questions, and trade-offs associated with different decisions.

Inventory control: consider a retailer that maintains an inventory of a particular product. Since customer demand changes over time, the retailer can use only historical data to predict demand. The retailer's objective is to decide at what point to reorder a new batch of the product, and how much to order so as to minimize inventory ordering and holding costs.

Network planning: consider several plants producing products to serve a set of geographically dispersed retailers. How should management select a set of warehouse locations and capacities, determine production levels for each product at each plant, and set transportation flows between facilities, in such a way as to minimize total production, inventory, and transportations costs and satisfy service level requirement? This is a complex optimization problem, and advanced technology and approaches are required to find a solution.

Supply contracts: each party in the chain focuses on its own profit and hence makes decisions with little regard to their impact on other supply chain partners. Relationships between suppliers and buyers are established by means of supply contracts that specify pricing and volume discounts, delivery lead times, quality, returns, and so fourth.

Information Technology and Decision-Support systems: the primary issue in supply chain management is not whether data can be received, but what data should be transferred; that is, which data are significant for supply chain management and which data can safely be ignored?

Supply chain integration: in today's competitive markets, most companies are forced to integrated their supply chain and engage in strategic partering. How can integration be achieved successfully? What level of integration is needed within the organization and with external partners? Finally, what types of partnerships can be implemented, and which type should be implemented for a given situation?

Distribution strategies: an important challenge faced by many organizations is how much should they centralize (or decentralize) their distribution system. What is the impact of each strategy on inventory levels and transportation costs? What about the impact on service levels? These questions are important not only for a single firm determining its distribution strategy, but also for competing retailers that need to decide how much they can collaborate with each other.

Procurement and outsourcing strategies: reducing transportation costs typically implies that each facility is flexible and has the ability to produce most or all products, but this leads to small batches and hence increases production costs. Finding the right balance between the two cost components is difficult but needs to be done monthly or quarterly.

Global logistics and risk management: all advantages and opportunities associated with global supply chains come with significant increase in the level of risks faced by today's global companies. Indeed, out-sourcing and off-shoring imply that the supply chain is geographically more diverse and hence more exposed to various risks.

Customer value: customer value is the measure of a company's contribution to its customer, based on the entire range of products, services, and intangibles that constitute the company's offerings. But what determines customer value in different industries? How is customer value in the supply chain? What is the relationship between product price and brand name in the conventional world and in the online world? Obviously, effective supply chain management is critical if a firm wishes to fulfil customer needs and provide value.

TEXTBOOKS AND REFERENCE MATERIALS

1. David Simchi-Levi., Philip Kaminsky, Edith Simchi-Levi. Designing and Managing the Supply Chain 3rd Edition. Mc Graw Hill Education, 2013. ISBN: 978-7-300-11099-8.

2. Donald J. Bowersox, David J. Closs, M. Bixby Copper, John C. Bowersox. Supply Chain Logistics Management, 4th Edition. Bei Jing, BJ: China Machine Press, 2014. ISBN: 978-0-07-802405-6.

3. Martin Christopher. Logistics and Supply Chain Management, 4th Edition. FT Press, 2011. ISBN: 0273731122.

4. Sunil Chppra, Peter Meindi. Supply Chain Management, 5th Edition. Prentice Hall, 2012. ISBN: 0132743957

5. Patrik Jonsson. Logistics and Supply Chain Management. McGraw Hill Higher Education, 2008. ISBN: 0077117387.

6. You can buy the book from Univ.'s Teaching Material Section or Amazon.cn: http://www.amazon.cn/mn/detailApp/ref=sr12?encoding=UTF8&s=books&qid=1275525674&asin=B002RT8KLI&sr=1-2

7. You can find most of the chapters in the electronic textbook at web site: http://www.netLibrary.com/urlapi.asp?action=summary&v=1&bookid=124519

COURSE TEACHING PLAN

Lectures

Serial No.	Contact Hours	Topic	Remark
1	2	Introduction to supply chain management	
2	2	Inventory management and risk pooling	
3	2	Network planning	
4	2	Supply contracts	
5	2	The value of information	
6	1	Quiz 1	
7	2	Supply chain integration	
8	2	Distribution strategies	
9	2	Strategic alliances	
10	2	Procurement and outsourcing strategies	
11	1	Quiz 2	
12	2	Global logistics and risk management	
13	2	Customer value	
Total	**24**		

Case Studies

Serial No.	Contact Hours	Topic	Remark
1	2	Inventory Management and Risk Pooling (Steel Works, Inc.)	
2	2	Network Planning (H. C. Starck, Inc.)	
3	2	The Value of Information (Reebok Nfl Replica Jerseys: A Case for Postponement)	
4	2	Strategic Alliances (How Kimberly-Clark Keeps Client Costco in Diapers)	
5	2	Procurement and Outsourcing Strategies (Zara)	
6	2	Global Logistics and Risk Management (Wal-Mart Changes Tactics to Meet International Tastes)	
Total	**12**		

Type of Assessment

Assessment	Style	Weighting	Due Date
Quiz	Two quizzes (10% each)	20%	
Problem Set	Four problem sets (5% each)	20%	
Paper	Final paper	60%	
Total		**100%**	

Prepared by: Liqiang Zhao
                    Professor, School of Economics and Management
Date: May, 2015

Approved by: School of Economics and Management
Date: June, 2015

COURSE OUTLINE

COURSE TITLE: **Capital Operation**
COURSE CODE:
CREDIT POINTS: 2
CONTACT HOURS: 36
LEVEL: Graduate, 2nd Semester
DELIVERY: Lectures

Course Description:

 Capital operation refers to the capital, which is owned by the main body of all tangible and intangible stock of capital, can be added to the activated capital, through the flow, fission, combination, optimize the allocation and other ways to effectively operate in order to maximize the value of value-added. That is to say, capital operation means to realize the optimal combination in the process of capital inflow and outflow of capital or the owner 's equity.

Capital operation is a newly emerging discipline which is widely used to absorb the knowledge of many subjects. It has a strong practical and practical application. This course introduces the basic knowledge and basic principle of capital management, the theory and operation process of enterprise merger and acquisition, cross-border M & A, enterprise restructuring, capital operation risk management and so on.

Course Outcomes:

Upon successful completion of this course, the student will be able to:
1. Master the basic knowledge of capital operation, and lay a solid foundation for learning other related subject knowledge and future work.
2. Use of economic management theory and practical work to solve the problem in reality.
3. Combining the related property economics, principal-agent theory and other related theories, to analyze the related theoretical content of M & A and reorganization, and further understand the economic significance of M & A and reorganization.

Course Content:

1. The motivation, current situation and key of domestic enterprise capital operation;
2. The motive and present situation of foreign enterprise merger and acquisition;
3. The distinction between the concept of merger, acquisition and reorganization;
4. The connotation of enterprise merger, acquisition and reorganization, and understand the legal issues of M & A;
5. The methods of enterprise merger, the practice of merger, the problems and Countermeasures of enterprise merger;
6. Experiences and lessons from the typical cases of corporate mergers and acquisitions;

7. Basic procedures, strategies and techniques for the acquisition of an enterprise;

8. Experience and lessons from the typical case of M & A typical case;

9. The connotation of enterprise asset restructuring and debt restructuring;

10. Experiences and lessons from typical cases of industry restructuring;

11. Difficulties and solutions of enterprise merger and acquisition;

12. Three the policies and the advantages and disadvantages of the land market;

13. The concept of strategic investors, strategic investors' choice of policy and risk of strategic investors;

14. Foreign capital stage, domestic capital stage;

15. Corporate bond investment, stock investment, enterprise's fund investment, enterprise futures investment, enterprise's foreign exchange investment, enterprise's real estate investment, BOT investment, venture capital;

16. Industry model, capital line, equity operations, overseas financing.

TEXTBOOKS AND REFERENCE MATERIALS

1.

COURSE TEACHING PLAN

Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Capital operation of domestic enterprises	
2	2	Capital operation of a foreign capital enterprise	
3	1	The concept and connotation of capital operation	
4	1	Core of capital operation: merger, acquisition and reorganization	
5	2	Enterprise merger	
6	2	Typical case studies and analysis (1)	
7	2	Enterprise acquisition	
8	2	Typical case studies and analysis (two)	
9	2	Enterprise restructuring	
10	2	Typical case studies and analysis (three)	
11	2	Integration of corporate mergers and acquisitions	
12	2	Listed	
13	2	Strategic investors	
14	2	Financing channels	
15	2	Other capital operation method	
16	4	Analysis of capital operation in typical industries	
Total	32		

Type of Assessment

The contents of test/examination/assignment will be from lectures and recommended reference reading material.

Assessment	Style	Weighting	Due Date
	the usual attendance	30	
	case discussion performance	30	
	small papers, small achievements	40	

Developed by:

Date: 2015.10

COURSE OUTLINE

COURSE TITLE: **Intermediate Economics**
COURSE CODE:
CREDIT POINTS: 3
CONTACT HOURS: 54 Hrs
LEVEL: Postgraduate, 2nd semester
DELIVERY: Lectures and Presentations

Course Description:

Intermediate Economics is divided into microeconomics and macroeconomics. This course is just the first part of it, Microeconomics. It introduces main economics theories and analytical methods for making rational decision. This course helps you understand and explain economics phenomenon. What's more, it helps you to learn how to make predictions. Economics is the basic course for students whose specialty is related to economics or management. It includes many new terms, calculations, and analytical methods with graphs which seems difficult at first but useful.

There are 54 hours for the whole course. At the beginning of every chapter, it puts forward some main questions you should focus on. Then it introduces key terms, economic theories and analytical methods. It also introduces economic phenomenon in real life which are related to economic theories. During the class, some exercises could help to review the key parts of every chapter. At the end of every chapter, you have some assignments after class then we could discuss at next class.

Course Outcomes:

Upon successful completion of this course, the students will be able to:
1. Introduce students to have the knowledge of economic terms and theories.
2. Introduce students with analytical methods of explaining and understanding economic phenomenon.
3. Introduce students to develop economic ways of thinking and learn to make predictions in life and work.

Course Content:

This course mainly includes principles of how people make decisions, principles of how people interact and principles of how the economy as a whole works. It discusses the factors affecting buyers' demand for goods and the factors affecting sellers' supply of goods, and discusses how changes in the factors that affect demand or supply affect the market price and quantity of a good. It discusses the definition of elasticity and what kinds of issues elasticity can help us understand. It discusses the definition of externality and private and public solution on externalities. It discusses the

definition of public goods and common resources and explains why the government might improve market outcomes in the case of public goods or common resources. It discusses various costs and how they are related to each other and output. It discusses the markets for the factors of production.

TEXTBOOKS AND REFERENCE MATERIALS

Textbooks:

Principles of Economics, Fourth Edition, by N. Gregory Mankiw, Tsinghua University Press

Reference Materials:

1. Economics, Sixteenth Edition, by Paul A. Samuelson, William D. Nordhaus, The Commercial Press

2. Microeconomics, Fifth Edition, by Olivier Blanchard, Tsinghua University Press

COURSE TEACHING PLAN
Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	2	Principle 1-4 of Economics	
2	2	Principle 5-10 of Economics	
3	2	Group Task and Assignment	
4	2	Demand	
5	2	Supply	
6	2	Demand-Supply Analysis	
7	2	Group Task and Assignment	
8	2	Summary and Quiz 1	
9	2	Price Elasticity of Demand	
10	2	Price Elasticity of Demand and Demand Curve	
11	2	Application of Price Elasticity of Demand	
12	2	Group Task and Assignment	
13	2	Categories and Effects of Externality	
14	2	Private Solutions of Externalities	
15	2	Public Solutions of Externalities	
16	2	Group Task and Assignment	

COURSE TEACHING PLAN
Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
17	2	Midterm Exam	
18	2	Midterm Review	
19	2	Definition and Examples of Public Goods and Common Resources	
20	2	Solutions of Public Goods and Common Resources	
21	2	Group Task and Assignment	
22	2	Production Function and Marginal Product	
23	2	Various Costs	
24	2	Scale of Economy	
25	2	Group Task and Assignment	
26	2	Summary and Quiz 2	
27	2	Demand of Labor	
28	2	Supply of Labor	
29	2	Other Factors of Production	
30	2	Group Task and Assignment	
31	2	Summary and Reviews	
32	2	Q&A	
Total	**64**		

Type of Assessment

Assessment	Style	Weighting	Due Date
Attendance and Assignment		20%	
Quiz	Two Quizzes (10% each)	20%	
Midterm Examination		20%	
Final Examination		40%	
Total		**100%**	

Prepared by: Li CHENG
                 Lecturer of School of Economics and Management
Date: May, 2015

Approved by: School of Economics and Management
Date: June, 2015

COURSE OUTLINE

COURSE TITLE: **CORPORATE STRATEGY**

COURSE CODE:

CREDIT POINTS: 3

CONTACT HOURS: 54

LEVEL: Postgraduate, 2nd semester

DELIVERY: Lectures

Course Description:

This course introduces students to involves formulation and implementation of the major goals and initiatives taken by a company's top management on behalf of owners, based on consideration of resources and an assessment of the internal and external environments in which the organization competes

Course Outcomes:

Upon successful completion of this course, students will be able to: provides overall direction to the enterprise and involves specifying the organization's objectives, developing policies and plans designed to achieve these objectives, and then allocating resources to implement the plans. Academics and practicing managers have developed numerous models and frameworks to assist in strategic decision making in the context of complex environments and competitive dynamics. Strategic management is not static in nature; the models often include a feedback loop to monitor execution and inform the next round of planning

Course Content:

This course mainly includes following contents: Corporate strategy involves answering a key question from a portfolio perspective: "What business should we be in?" Business strategy involves answering the question: "How shall we compete in this business?" In management theory and practice, a further distinction is often made between strategic management and operational management. Operational management is concerned primarily with improving efficiency and controlling costs within the boundaries set by the organization's strategy.

Textbooks and Reference Materials:

The teacher will write his/ her own teaching plan and distribute the materials to students.

Type of Assessment and Weighting:

1. Attendance   30%

2. Final Tests   70%

Prepared by: Wang Ke

Date:2015.05

COURSE OUTLINE

COURSE TITLE:	**Methodology of Management**
COURSE CODE:	
CREDIT POINTS:	2
CONTACT HOURS:	36 Hrs
LEVEL:	Postgraduate, 2nd semester
DELIVERY:	Lectures

Course Description:

Methodology of Management is a comprehensive system for research method. With rapid growth in volume of the graduate, the quality of graduate thesis is more and more become the focus of attention. One of the most critical issue is the research methods. This course is to look for the answer to these problems, including research design, data collection, data analysis, research and thesis writing aspects. The aim is to make the student understand research purpose and the nature, how to select the specific content of the research methods and specific research methods, including research design, variables design, design of research topic, research plan of writing, etc. To make the students grasp the research methods on macro history and trend of development, its characteristics, limitations, to grasp the method of normative research and project design.

Course Outcomes:

Upon successful completion of this course, the student will be able to:
1. Students will learn the research design;
2. Students will learn how to do variables design;
3. Students will write an essay using empirical study by AMOS.

Course Content:

This course including four main parts, including introduction to business research, the design of research, the sources and collection of data, analysis and presentation of data. In this class we also will talk about the design strategy, measurement, and scale design. At last, use AMOS to practice factor analysis and path analysis. With these knowledge require students finish their investigation. There will be two presentations that is assigned in advance. Students should prepare presentations with ppt. The ppt. should be submitted, and the marks of the presentation will consider both the expression of the students in the class and the contents of ppt. Therefore, students should prepare presentations carefully and actively.

TEXTBOOKS AND REFERENCE MATERIALS

1. Donald R.Cooper Pamela S.Schindler. Business Research Methods, 6th ed. 1998.

COURSE TEACHING PLAN
Lectures and Tutorials

Serial No.	Contact Hours	Topic	Remark
1	4	Introduction to Business Research	
2	4	Design Strategies	
3	2	Measurement	
4	2	Scale Design	
5	4	The Sources and Collection of Data	
6	4	Data Preparation and Preliminary Analysis	
7	4	Hypothetic Testing	
8	4	Factor Analysis with AMOS	
9	4	Path Analysis with AMOS	
10	4	Presentation	
Total	54		

Type of Assessment

Assessment	Style	Weighting	Due Date
Attendance and performance		20%	
presentation		20%	
Assignment		20%	
Paper		40%	
Total		**100%**	

Prepared by: Xianying XU
               Associate Professor of School of Economics and Management
Date: May, 2015

Approved by: School of Economics and Management
Date: June, 2015

COURSE OUTLINE

COURSE TITLE: **Enterprise Resource Planning**
COURSE CODE:
CREDIT POINTS: 3
CONTACT HOURS: 54
LEVEL: Postgraduate, 1st semester
DELIVERY: Lectures

Course Description:

This course refers to is a business management software—usually a suite of integrated applications—that a company can use to collect, store, manage and interpret data from many business activities.

Course Outcomes:

Upon successful completion of this course, students will be able to: ERP provides an integrated view of core business processes, often in real-time, using common databases maintained by a database management system. ERP systems track business resources—cash, raw materials, production capacity—and the status of business commitments: orders, purchase orders, and payroll. The applications that make up the system share data across the various departments (manufacturing, purchasing, sales, accounting, etc.) that provide the data. ERP facilitates information flow between all business functions, and manages connections to outside stakeholders.

Course Content:

This course mainly includes following contents: An integrated system that operates in (or near) real time without relying on periodic updates; A common database that supports all applications; A consistent look and feel across modules; Installation of the system with elaborate application/data integration by the Information Technology (IT) department, provided the implementation is not done in small steps.

Textbooks and Reference Materials:

The teacher will write his/ her own teaching plan and distribute the materials to students.

Type of Assessment and Weighting:

1. Attendance   30%
2. Final Tests   70%

Prepared by: Wang Ke

Date: 2015.05