SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Analog Circuits (Eng)
	模拟电路(英)
COURSE CODE	12002620
LOCATION	University of Shanghai for Science and Technology
SEMESTER	3
RESPONSIBLE FOR THIS COURSE	LIU Jian
	刘垒
CREDIT POINTS	5ECTS
HOURS OR WEEKS	64 hours
COURSE OBJECTIVES	After successfully studying this course, students will be able to: 1. Understand the concepts of employing simple models to represent non-linear and active elements-such as the MOSFET-in circuits. 2. Understand the basic electrical engineering principles and abstractions on which the design of electronic systems is based. 3. Use these engineering abstractions to analyze and design simple electronic circuits.
PREREQUISITES	Circuit Principles, High Mathematics, Physics
COURSE CONTENTS	1. PN Junction; 2. Integrated operational amplifier and applications; 3. Semiconductor Diodes; 4. Semiconductor transistors; 5. Field-Effect Transistors; 6. Differential amplifiers; 7. Feedback; 8. Power amplifier; 9. Signal generation circuits; 10. Power supplies.
DIDACTIC METHODS	Blackboard and chalk, PPT Lecture notes display by computer and projector
GRADING	Homework: 10%; Quiz: 10%; Attendance: 10%; Final Exam: 70%
BIBLIOGRAPHIES	1. Electronic Devices and Circuit Theory, Robert Boylestad, Louis Nashelsky, Pearson Prentice Hall, 2008.8, ISBN: 0136064639.

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	MATLAB (Eng)
	MATLAB (英)
COURSE CODE	12002600
LOCATION	University of Shanghai for Science and Technology
SEMESTER	3
RESPONSIBLE FOR THIS COURSE	XIA Chunlei
	夏春蕾
CREDITS POINTS	2ECTS
HOURS OR WEEKS	32 hours
COURSE OBJECTIVES	Student's outcome from this course should be able to solve and present engineering problem solutions with MATLAB and be able to enhance learning and performance in other engineering and science courses.
PREREQUISITES	Knowledge of "higher mathematics" and "linear algebra" and 'C programming'.
COURSE CONTENTS	1. Basic knowledge of MATLAB. 2. Matrix operation & application on mathematics. 3. MATLAB data type & symbolic operation. 4. MATLAB Programming. 5. Data visualization & GUI. 6. Simulink 7. API & complier
DIDACTIC METHODS	14 hours lecture + 18 hours Computer operation
GRADING	Practice : 60%; Final Exam: 40%
BIBLIOGRAPHIES	1. ZHANG Zhiyong. MATLAB Course. Beihang University Press, 2012 2. HOLLY Moore. Matlab For Engineers. Publishing House For Electronics Industry, 2010 3. STEPHEN J Chapman. Matlab Programming. 4th Edition, Science Press, 2011 4. LIU Hao, HAN Jin. Matlab R2012a. Publishing House of Electronics Industry, 2013

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Probability Theory and Mathematical Statistics (Eng)
	概率论与数理统计(英)
COURSE CODE	22002410
LOCATION	University of Shanghai for Science and Technology
SEMESTER	3
RESPONSIBLE FOR THIS COURSE	LIU Xiping
	刘锡平
CREDITS POINTS	4 ECTS
HOURS OR WEEKS	48 hours
COURSE OBJECTIVES	Master basic concepts about Probability Theory and Mathematical Statistics; understand the basic theory and method; realize the processing of the phenomenon of random basic idea and method; develop the ability to solve practical problems using the method of probability and statistics analysis.
PREREQUISITES	Calculus
COURSE CONTENTS	1. Random Events and Probability 2. Random Variables and Distribution 3. Expectation and Variance 4. Multi-dimensional Random Variables and Distribution 5. Law of Large Numbers and Central Limit Theorem 6. Basic conceptions of Statistics 7. Estimation Problems 8. Testing Hypothesis
DIDACTIC METHODS	Instruction, Quiz, Modeling, Questions
GRADING	30% for homework and attendance, 70% for final written examination
BIBLIOGRAPHIES	1. Probability and Statistics For Engineering and The Sciences, Fifth Edition, Jay L. Devore, 2004 2. Probability Theory and Mathematical Statistics, Science Press, Ci-Nan Ye and Xi-Ping Liu, 2010.

SYLLABUS“OPTOELECTRONIC ENGINEERING”	
DATE	June 2015
COURSE NAME	Packaging (Eng)
	封装技术 (英)
COURSE CODE	12004000
LOCATION	University of Shanghai for Science and Technology
SEMESTER	3
RESPONSIBLE FOR THIS COURSE	DAI Bo
	戴博
CREDITS POINTS	3 ECTS
HOURS OR WEEKS	32 hours
COURSE OBJECTIVES	Students are familiar with some updated electrical, mechanical and optical components including integrated circuit (IC), micro-electro-mechanical system MEMS, optical MEMS and microfluidic devices. In addition, students get to know materials for packaging and fabrication and packaging technology such as bulk micromachining and surface micromachining.
PREREQUISITES	A fundamental knowledge of physics, chemistry and microtechnology
COURSE CONTENTS	1 Integrated circuit 1.1 Electronic Packaging Hierarchy 1.2 IC Package Families 1.3 Evolution of Package Type 2 MEMS 2.1 Applications of MEMS 2.2 Micro electronics, micro mechanics, and micro optics 3 Optical MEMS 3.1 Advantages of optical MEMS 3.2 Applications of optical MEMS 4 Packaging of MEMS 4.1 Tradeoff of packaging complexity and performance 4.2 Bulk micromachining 4.3 Surface micromachining 5 Microfluidic device 5.1 Applications of microfluidic device 5.2 Fabrication and packaging of microfluidic device 5.3 Lab tour for microfluidic device 6 Materials for packaging 6.1 Semiconductor materials. 6.2 Properties of materials used for packaing
DIDACTIC METHODS	Lecture supported by blackboard or visualizer and beamer, lab tour
GRADING	Attendance (40%) + Report (30%) + Presentation (30%);
BIBLIOGRAPHIES	John Lau, Cheng Lee, C. Premachandran, Yu Aibin, Advanced MEMS Packaging , McGraw-Hill Education Daniel Lu, C.P. Wong, Materials for Advanced Packaging, Springer Dan E. Angelescu, Highly Integrated Microfluidics Design, Artech House Publishers

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	VC Programming (Eng) /Software Design
	VC 程序设计(英) /Software Design
COURSE CODE	12002590
LOCATION	University of Shanghai for Science and Technology
SEMESTER	3
RESPONSIBLE FOR THIS COURSE	HUO Huan
	霍欢
CREDITS POINTS	7 ECTS
HOURS OR WEEKS	96 hours
COURSE OBJECTIVES	This course focuses on the systematic study of VC programming and the Windows MFC programming and design. The prevailing theme will be large and complex collaborations of objects when completing comprehensive tasks.
PREREQUISITES	C programming
COURSE CONTENTS	Lecture: 1. Introduction 2. Visual C++ programming and development environment 3. C++ basic grammar 4. A basic MFC application procedures 5. Dialog box and the common control 6. Visual C++ drawing 7. Database programming 8. The dynamic link library DLL programming
	Lab: 1. The console application design 2. MFC programming 3. Calculator program design 4. Notepad program design 5. Drawing tools program design 6. The Walkman program design 7. The design of student management system 8. DLL programming
DIDACTIC METHODS	50% Lecture + 50% Lab
GRADING	Final Project 50% + Experiments &Homework 30% +Presence 20%
BIBLIOGRAPHIES	1. Ivor Horton's Beginning Visual C++ 2012, By Ivor Horton, John Wiley & Sons Publishing, 2012. ISBN-13: 978-1118368084 2. Programming Microsoft Visual C++, By David Kruglinski, George Shepherd, Scot Wingo, Microsoft Press, 1998. ISBN-13: 978-1572318571 3. Microsoft Visual C++ Windows Applications by Example: Code and explanation for real-world MFC C++ Applications, By Stefan Björnander, Packt Publishing, 2008. ISBN-13: 978-1847195562 4. Introduction to MFC Programming with Visual C++, By Richard M. Jones, Prentice Hall, 2000. ISBN-13: 978-0130166296 5. Programming Windows with MFC, Second Edition, By Jeff Prosise, Microsoft Press, 1999. ISBN-13: 978-1572316959

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Electromagnetics
	电磁学
COURSE CODE	22000090
LOCATION	University of Shanghai for Science and Technology
SEMESTER	3
RESPONSIBLE FOR THIS COURSE	WANG Lijun
	王丽军
CREDITS POINTS	5 ECTS
HOURS OR WEEKS	64 Hours
COURSE OBJECTIVES	Help the students to understand the basic electromagnetic phenomena, to understand of basic concept, experimental phenomena and the basic laws of electromagnetic filed within the nature; Enhance the students' ability to preliminarily understand the comprehensive electromagnetic filed and its fundamental laws; Encourage the students to grasp the relationship between electricity and magnetism conversion, to understand the unity and difference between electricity and magnetism; Help the students to master the basic movement rules of the electromagnetic field, to understand the materiality of the electromagnetic field. Cultivate the students to solve the problem and analysis the propagation and /or the electromagnetic field distribution in the dielectric medium space; Encourage the students to construct the solid fundamental knowledge for further research and study.
PREREQUISITES	Advanced Mathematics; Physics
COURSE CONTENTS	Electromagnetism studies the rules and basic disciplines of electromagnetic phenomena in the nature. The main contents include static electric charge and moving charge; electrostatic potential; static persistent current field; magnetic media in a magnetic field; magnetic media in the dielectric field etc. The main course contents include: 1. An overview of the charge electromagnetic field (8 hours) Part 1, the electrostatic potential (6 hours) Part 2, the electrostatic dielectric field (8hours) 2. Steady current (6 hours) 3. Static magnetic field (8 hours) 4. The magnetic field in the medium (6 hours) 5. Introduction of the law of electromagnetics (8 hours)
DIDACTIC METHODS	Lectures & PPT files & experiments
GRADING	Final exam (70%) + Performance (30%);
BIBLIOGRAPHIES	1. Electromagnetics, Zhao Kai Hua, Chenxi seek , Higher Education Press ; 1986. 2. Electromagnetics, Chor Lee Chun, Zhou Lezhu , Peking University Press ; 2000. 3. Electromagnetics, Zhang Sanhui , Tsinghua University Press; 2001.

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Digital Circuits (Eng)
	数字电路(英)
COURSE CODE	12002630
LOCATION	University of Shanghai for Science and Technology
SEMESTER	4
RESPONSIBLE FOR THIS COURSE	XIN Shangzhi
	忻尚芝
CREDIT POINTS	5 ECTS
HOURS OR WEEKS	64 hours
COURSE OBJECTIVES	With an emphasis on the basic knowledge and basic concept of electronic technology, learn the methods of analyze and design of electronic circuits. The students will gain the ability to analyze various circuits and make good foundation for electronic technology and experiments. 1. Understand the basic electrical engineering principles and abstractions on which the design of electronic systems is based. 2. Use these engineering abstractions to analyze and design simple electronic circuits. 3. Show knowledge about encoding strategies and understand impacts on next state forming logic circuit.
PREREQUISITES	Circuit Principles, High Mathematics, Physics
COURSE CONTENTS	1. Member systems; 2. Logic gates; 3. Wave forms and Boolean algebra; 4. Exclusive-or gates; 5. Adders; 6. Specifications and open-collector gates; 7. Flip-flops; 8. Master-slave D and JK flip-flops; 9. Shift registers; 10. Counters.
DIDACTIC METHODS	Blackboard and chalk, PPT Lecture notes display by computer and projector
GRADING	Homework: 10%; Quiz: 10%; Attendance: 10%; Final Exam: 70%
BIBLIOGRAPHIES	1. Digital Electronics(4th edition), James Bignell & Robert Donovan, Thomson, 2003, ISBN: 07668032877.

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Signals and Systems (Eng)
	信号与系统(英)
COURSE CODE	12002670
LOCATION	University of Shanghai for Science and Technology
SEMESTER	4
RESPONSIBLE FOR THIS COURSE	XU Weidong
	许维东
CREDITS POINTS	4 ECTS
HOURS OR WEEKS	48 hours
COURSE OBJECTIVES	Learning and grasping the basic analysis methods of signals and systems in time, frequency and complex frequency domains
PREREQUISITES	Functions of Complex Variable and Integral Transforms, Linear Algebra, Electric Circuit
COURSE CONTENTS	1. Introduction to Signals and Systems 2. Linear Time-Invariant Systems 3. Continuous-Time Fourier Series and Transform 4. Sampling 5. Laplace Transform 6. Z-Transform
DIDACTIC METHODS	Instruction with auxiliary Forum/Homework/Experiment/Simulation
GRADING	Instruction (60%) + Homework/Experiment/Simulation/Forum(40%)
BIBLIOGRAPHIES	1. A. V. Oppenheim. Signals and Systems (2nd Edition). Publishing House of Electronics Industry, 2013

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Thermodynamics (Eng)
	热力学(英)
COURSE CODE	12002680
LOCATION	University of Shanghai for Science and Technology
SEMESTER	4
RESPONSIBLE FOR THIS COURSE	ZHENG Jihong
	郑继红
CREDIT POINTS	4ECTS
HOURS OR WEEKS	48 hours
COURSE OBJECTIVES	Learning Objectives: Knowledge of thermodynamics sets. Insight into the thermochemistry with emphasis on the calorimetric determination of heats of reaction and energies, absorbed by his own laboratory experiments. Insight into different reaction kinetics and the resulting activation energies absorbed by its own laboratory tests. Knowledge of the interaction of radiation and matter, and overview of the consequences for important analytical devices of microsystems technology.
PREREQUISITES	Mathematics, Physics
COURSE CONTENTS	1. Gas Laws 1.1 Ideal Gas 1.1 Real Gas 2. Thermodynamics 2.1 Basic principle of Thermodynamics 2.2 volume of work 2.3 Isothermal , isobaric , isochoric , adiabatic processes 2.4 thermochemistry 2.5 reaction energies , reaction enthalpies 2.6 2nd law and 3rd law 2.7 entropy based energy o Free energy of reaction and enthalpy of reaction 3. kinetics 3.1 different reaction orders 3.2 activation energy 3.3 kinetically and diffusion-controlled processes 4. interaction between radiation and matter 4.1 Lambert - Beer 4.2 Microwaves - Spectroscopy 4.3 IR - spectroscopy 4.4 UV-vis spectroscopy 4.5 kinetically and diffusion-controlled processes
DIDACTIC METHODS	Lectures & experiments
GRADING	70% exams (knowledge+experiments)+30% performance
BIBLIOGRAPHIES	1. Gordon M. Barrow, Physical Chemistry , Verlag Vieweg and Publishing Bohman Peter W. Atkins, Physical Chemistry, Wiley- VCH 2. Landau, L.D. and Lifshitz E. M, Statistical Physics, Pergamon Press, L. E. Reichl ,A modern course in Statistical Physics, Texas University,

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Solid State Physics I (Eng)
	固体物理 I (英)
COURSE CODE	12002690
LOCATION	University of Shanghai for Science and Technology
SEMESTER	4
RESPONSIBLE FOR THIS COURSE	ZHANG Ling
	张玲
CREDIT POINTS	4 ECTS
HOURS OR WEEKS	48 hours
COURSE OBJECTIVES	Let the students know the basics of crystallography，quantum physics，statistical physics and lattice dynamics; Help the students to further understand micro-technological processes and components in the future.
PREREQUISITES	General Physics and Mathematics
COURSE CONTENTS	1. Crystallographic Basics Space lattice, unit cell, Wigner-Seitz cell Lattice symmetry and Bravais lattices Crystal = lattice plus basis (examples) Crystal planes and Miller indices 2. Reciprocal lattice Definition of the reciprocal lattice vectors Properties of the reciprocal lattice and the Brillouin zone 3. Structural analysis Laue equations of X-ray diffraction Laue equations in the reciprocal lattice Bragg Law Methods of structure determination: Laue method, powder method and Rotating crystal method 4. Quantum Physics Basics One-dimensional, time-independent Schrödinger equation and square-well potential Born's Statistical Interpretation of the wave function, uncertainty principle and Pauli principle 5. Statistical physics Basics Boltzmann-Fermi-Dirac and Bose-Einstein distribution 6. Lattice vibrations Vibrations of the linear chain and dispersion relation Specific heat of the lattice (Debye model)
DIDACTIC METHODS	lecture with exercises
GRADING	70%exam+30%performance
BIBLIOGRAPHIES	1. Kittel, Introduction to Solid State Physics (8 ED.), John Wiley & Sons, Inc 2. Kun Huang(黄昆), Solid State Physics(固体物理学),Higher Education Press, HEP

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Physical Optics (Eng)
	物理光学(英)
COURSE CODE	12002700
LOCATION	University of Shanghai for Science and Technology
SEMESTER	4
RESPONSIBLE FOR THIS COURSE	JIA Hongzhi
	贾宏志
CREDIT POINTS	2 ECTS
HOURS OR WEEKS	32 hours
COURSE OBJECTIVES	With an emphasis on a Physical optics module, students will gain a professional and improved knowledge of wave optics and advanced optics development. They can know well about the light wave properties of interference, diffraction and polarization and understand the typical installations of interference, diffraction, polarization and their applications.
PREREQUISITES	Mathematics, Physics
COURSE CONTENTS	1. General Introduction to physical optics; 2. Basic theory of electromagnetic waves; 3. The light reflection and refraction on the boundary of two different media ; 4. The interference of light waves; 5. Typical installation of interference and their applications; 6. The diffraction of light waves; 7. Typical installation of diffraction and their applications; 8. The polarization of light waves; 9. The generation of polarized light waves and their applications; Conclusion.
DIDACTIC METHODS	Lecture & experiment
GRADING	60% exam + 40% performance
BIBLIOGRAPHIES	1. Eugene Hecht，Optics (Fourth edition). Higher Education Press, 2005 2. Li Xiangning, Jia Hongzhi, Optical Engineering, Science press, 2010 (second edition) 3. Yu Daoyin, Tan Hengying, Optical Engineering, Mechanical industrial press, 2007(second edition)

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Principles of Single-Chip Microcomputer (Eng) 单片机原理(英)
COURSE CODE	12002640
LOCATION	University of Shanghai for Science and Technology
SEMESTER	4
RESPONSIBLE FOR THIS COURSE	SUN Guoqiang 孙国强
CREDIT POINTS	5 ECTS
HOURS OR WEEKS	64 hours
COURSE OBJECTIVES	1. Be familiar with the principles of Harvard structure microcomputer. 2. Be familiar with software design in assembly language, assembly language and C language hybrid programming. 3. Be familiar with interface design for MCU. 4. Be able to design simple application system.
PREREQUISITES	Principles of Circuits, Digital Electronic Technology, Analog Electronic Technology, Principles of Microcomputer
COURSE CONTENTS	1. The introduction of the characters, applications and futures of single-chip MCU series products. 2. The hardware structure of MCS-51 including the basic structure, package, pins, memory allocation, I/O interface, clock, time sequence and working mode. 3. The instructions system of MCS-51 including the basic structure of assembly language, addressing mode, instructions and pseudo instructions. 4. Assembly language programming for MCS-51, focus on program design method, code exchange and computing program. 5. The interruption system of MCS-51 including the structure and functions of the interruption, interruption control and response, response time, triggering mode, cancelling of interruption request, interruption service program design and multiple external interruption sources design. 6. The Timer/Counter of MCS-51 including working principles and modes, programming and application. 7. The serial communication of MCS-51 including the interface, baud rate setting, serial communication between single-chip microcomputers. 8. Parallel interface of MCS-51 including parallel extended mode, extended programming read only memory, extended data random access memory, 8255A and 8155A. 9. I/O interface of MCS-51 including LED, LCD, Keyboard, micro printer and 8279. 10. A/D and D/A technology of MCS-51. 11. Serial interface extended and serial interface standard. 12. The enhancement IC of MCS-51 for example P89C51Rx2. 13. The design and debug of application MCU system including design method, hardware design, software design, reliability design. 14. C51 program design and anti-interference technology of application system.
DIDACTIC METHODS	Classroom teaching
GRADING	Homework: 30%; Final Exam or Course Report: 70%
BIBLIOGRAPHIES	1. MCS51 Microcontroller Family User's Manual. 2. ZONG Chengge. Principles and applications of Single-chip microcomputer. Harbin Institute of Technology Press. 2009.

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Project of Single-Chip Microcomputer (Eng)
	单片机课程设计(英)
COURSE CODE	12101340
LOCATION	University of Shanghai for Science and Technology
SEMESTER	Short Semester 3
RESPONSIBLE FOR THIS COURSE	SUN Guoqiang
	孙国强
CREDIT POINTS	2 ECTS
HOURS OR WEEKS	2 weeks
COURSE OBJECTIVES	Be familiar with the design of an entire application system including system design, hardware design and software design based on single-chip microcomputer.
PREREQUISITES	Principles of Single-Chip Microcomputer, Experiments of Single-Chip Microcomputer
COURSE CONTENTS	1. The digital voltmeter design including multiple input signals, 0 to 10V voltage testing, and optional display according to the test result. 2. The clock system design including records of hour, minute, second and millisecond, choose of 12 hours or 24 hours, hourly chime and on time alarm and the setting option. 3. The smart temperature measurement system based on DS18B20 with the functions such as -55 to 125℃ testing scope, setting top and bottom limitation alarm, real time display and so on. 4. The traffic light control system experiments for two crossroads with the functions such as manual and auto control switch, setting passing time, adjusting the passing mode according to the special vehicle request.
DIDACTIC METHODS	Laboratory teaching
GRADING	Homework: 30%; Final Exam or Course Report: 70%
BIBLIOGRAPHIES	1.MCS-51 Microcontroller Family User's Manual 2.MCS-51 Experiments Manual

SCIE Level 1 Syllabus

Subject	Speaking + Listening	Reading
Total Class hours	256	64
Class hours per week	16	4
Materials	40lessons for basic Chinese Course Listening Book 1	Text book for Chinese Characters
Learning Goal	1、To learn more basic words order, sentence patterns and some grammars, vocabulary of about 1000. 2、Be fluent in speaking the most common topics in daily conversation which covers meal, travelling, medical care, weather, city etc. 3、To listen and understand over 80% of a 100 word essay or conversation by normal speed, covering numbers, dates, asking direction and ordering etc.	1、To be able to recognize 420 Chinese characters in the text book. To recognize often used characters by single (not in a word or sentences) 2、To be able to read the texts and reading materials in a specified duration and get a general idea of it. 3、To be able to do the homework by cell phone or e-mail and send it to teacher. 4、To know basic rules of writing characters and be able to write characters with the guidance of exercise book.
Semester Task	To do a project by video or audio about a travelling experience, celebrating a festival, a comparison of two cities, or being a guest or food ordering is also encouraged. (3 – 5 minutes)	To type or write a paragraph on your life in Shanghai with 100 Chinese characters.
HSK Level	Equals to New HSK Level 3	
Requirements	To get the best effect, students in this level are expected: 1. To attend every lesson on time during the semester. 2. To follow the rules and instructions given by the teachers. 3. To finish all activities, exercises and homework given by the teachers. 4. To spend at least 30 minutes to review speaking and listening materials every day. 5. To spend at least 30 minutes to review reading materials every day, including10 minutes of typing and exercises in the writing exercises book.	

SCIE Level 2 Syllabus

Subject	Speaking + Listening	Reading
Total Class hours	256	64
Class hours per week	16	4
Materials	40lessons for basic Chinese course Listing book 2	Elementary Chinese Reading book 2
Learning Goal	To be proficient in carrying out conversations and having further discussion about topics, such as renting houses, diet, pets, traffic accident etc, in higher level with following grammars:. a. To be proficient in using "zhe", "le", "guo" ---- three states of verbs in Chinese to describe actions of others or oneself. b. To be proficient in using complements of direction and complements of result to describe results and directions of verbs. c. To use "ba" sentences naturally to express meaning of guiding and commanding. d. To use "bei" sentences or notionally passive sentences to express passive voice.	1. To be able to recognize about 700 Chinese characters in the text book. To recognize often used characters by single (not in a word or sentences) 2. To be able to read the texts and reading materials in a specified duration and get a general idea of it. 3. To be able to do the homework by cell phone or e-mail and send it to teacher. 4. To know more about the structures of characters and rules of writing. To understand the meaning and distinguish more than 20 radicals. And be able to write part of the characters learned in the class.
Semester Task	To do a project by video or audio about a culture or a food receipt in hometown.(5-8minutes)	To type a paragraph of 250 Chinese characters.
HSK Level	Equals to New HSK Level 4/5	
Requirements	To get the best effect, students in this level are expected: 1. To attend every lesson on time during the semester. 2. To follow the rules and instructions given by the teachers. 3. To finish all activities, exercises and homework given by the teachers. 4. To spend at least 30 minutes to review speaking and listening materials every day. 5. To spend at least 30 minutes to review reading materials every day, including10 minutes of typing (writing).	

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Optoelectronics (Eng)
	光电子学(英)
COURSE CODE	12002750
LOCATION	Ostbayerische Technische Hochschule Regensburg
SEMESTER	7
RESPONSIBLE FOR THIS COURSE	Prof. Dr. Rupert Schreiner
CREDITS	8
HOURS OR WEEKS	96 hours
COURSE OBJECTIVES	The students shall learn to know the fundamentals, the design, the technology and the operation of optoelectronic materials and modern optoelectronic devices (e.g. LED, OLED, Semiconductor Lasers, integrated optoelectronic circuits and photo-detectors). Based on this knowledge they should be able to read scientific publications in this field.
PREREQUISITES	Solid State Physics, Math. Meth. Phys.
COURSE CONTENTS	Part I: Fundamentals 1. Light waves (Propagation of Light) 1.1 Ray Tracing 1.2 Light waves 1.3 Maxwell-Theory of EM-waves 1.4 Dielectric waveguides 2. Photons (Emission and Detection of Light) 2.1 Discrepancies between Maxwell's Theory and Experiments 2.2 Light as a particle (Photon), Light-Particle dualism 2.3 Emission and absorption of light 2.4 Illumination and color perception 2.5 Optical gain and laser radiation 3. Opto-Semiconductors 3.1 Energy band model; direct and indirect semiconductors 3.2 Undoped and doped opto-Semiconductors 3.3 Semiconductor diode theory 3.4 Heterostructures / Technology of III-V-semiconductors Part II: Applications 4. LED's 4.1 Excess recombination 4.2 Electro-optical characteristics 4.3 Radiative and non-radiative recombination 4.4 Measures for increasing efficiency 4.5 Emission spectrum 4.6 OLED 4.7 Modulation behavior 5. Optical Amplification and Semiconductor Lasers 5.1 First Laser condition (inversion condition) 5.2 Second laser condition (optical gain) 5.3 Technical realization of inversion 5.4 Electro-optical characteristic in cw-mode 5.5 Emission spectrum 5.6 wavelength tunable lasers 5.7 Modulation behavior 6. Photodetectors, solarcells and semiconductor optical modulators

	6.1 Internal photoeffect 6.2 Electrical characteristics of illuminated pn-junctions („photo elements“) 6.3 Solar cells 6.4 pin-photo diodes 6.5 electro-optic modulators 7. Optoelectronic Sensor-Systems 7.1 Opto-electrical bridge circuit 7.2 PS-Detectors / CCD-arrays 7.3 Fiber-optic sensors
DIDACTIC METHODS	Lecture supported by blackboard or visualizer and beamer, exercises
GRADING	Final exam (70%) + performance (30%);
BIBLIOGRAPHIES	1. Wood. Optoelectronic Semiconductor Devices. Prentice Hall, Herfordshire (UK) (1994) 2. Bhattacharya. Semiconductor Optoelectronic Devices 2nd Ed., Prentice Hall, Upper Saddle River (NJ) (1997)

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Fiber Optics (Eng)
	光纤光学(英)
COURSE CODE	12002760
LOCATION	Ostbayerische Technische Hochschule Regensburg
SEMESTER	7
RESPONSIBLE FOR THIS COURSE	Prof. Dr. Rupert Schreiner
CREDITS	8
HOURS OR WEEKS	80 hours
COURSE OBJECTIVES	Help the students to understand the concept of Determinant, matrix, linear equations, vector spaces, eigenvalues eigenvectors, quadratic ; Help the students to grasp the basic theory and methods of Linear algebra; Develop the students' to solve practical problems.
PREREQUISITES	Mathematics
COURSE CONTENTS	1. Introduction 2. Foundations of Optics Physics of Light (Maxwell equation, wave propagation, electromagnetic waves, polarization, plane waves, Gaussian Beam (paraxial wave equation), energy (pointing vector), free-space and waveguide propagation) Scattering: Rayleigh and Mie Theory Interaction of radiation with matter: Laser basics, Fresnel equations, power transmission and reflection The dielectrical function und optical properties of matter: Refractive index and absorption, metal optics, Plasmafrequency Photometry 2.1 Properties of natural and technical light sources Blackbody radiation: Plank's laws of radiation Coherence (temporal, spatial) 2.2 Geometrical Optics (reflection and refraction, internal reflection) Lenses, microscopy, telescopes, special lenses e.g. telecentric lens Controlling light: Pockels cell, optical diodes, Prisms, Birefringence 2.3 Interference and diffraction Michelson, Mach-Zehnder, Speckles 3. Detection of Light Overview: Common detectors and their properties Noise in optical detection; S/N , NEP, Detectivity 4. Optical measurement techniques 4.1 Distance measurement 4.1.1 Time of flight 4.1.2 Triangulation 4.1.3 Confocal techniques 4.2 Velocity measurement, LDA Laser doppler anemometry 4.3 Meas. surface properties: Profile measurement, roughness measurement 4.4 Ellipsometry, Meas. Layer thickness 4.5 Interferometry (incl. Speckle interferometry) 4.6 Methods of spectroscopy 4.6.1 IR spectroscopy 4.6.2 Raman, CARS, BOXCARS 4.7 LIF and LIDAR 5. Image processing methods – basics of Fourier optics 5.1 Dark field and Schlieren fotography

	6. Optical fiber 6.1 Geometrical-Optics Description (ray optics, step-index fiber, graded-index fibers) 6.2 Fiber Modes (fiber modes of step-index fibers, fiber modes of gradient index fibers, single mode fiber) 6.3 Material Characteristics of fibers (losses, dispersion, mechanical properties of fibers) 6.4 Fiber Manufacturing (design issues, fabrication methods, cables) 7. Signal Degradation in Optical Fibers 7.1 Attenuation (Absorption, scattering losses, bending losses) 7.2 Signal Distortion in Optical Waveguides (Information capacity determination, bandwidth-distance product, group delay, material dispersion, waveguide dispersion, intermodal dispersion) 8. Power Launching and Coupling 8.1 Coupling Loss (phase space, coupling loss of multimode systems, coupling loss of single mode systems) 8.2 Source to Fiber Power Launching (power-coupling calculations, lensing schemes for coupling improvements) 8.3 Fiber optic connectors (ferrule, split-sleeve, assembly of fiber optic connectors, multichannel connectors, insertion loss, return loss, measurement techniques) 9. Alignment Metrology and Techniques 9.1 Alignment Techniques (active automated alignment, hybrid active/passive automated alignment, passive automated alignment) 9.2 Examples of Micro-Optic Based Components (Coupling radiation from a Laser Diode into a fiber, coupling radiation form a fiber into a photodetector, packaging of optical subassemblies, attenuator, mechanical optical switch, beam splitter.)
DIDACTIC METHODS	Lecture supported by blackboard or visualizer and beamer, exercises
GRADING	Final exam(70%) + Performance report (30%);
BIBLIOGRAPHIES	1. A. Yariv: “Optical Electronics”, Saunders College publishing, 1991 2. J. Hawkes, I. Latimer: “Lasers, Theory and practice”, Prentice Hall, 1995, ISBN 0-13-521493-9 3. A.E. Siegman: “Lasers”, University Press Oxford, 1986 4. Eugene Hecht. „Optics“, Addison Wesley, San Francisco, 2002, ISBN 0-8053-8566-5 5. F.L. Pedrotti, S.J. Leno Pedrotti: “Introduction to optics”, Prentice Hall, New Jersey, 1987, ISBN 0-13-501545-6 6. K.D. Moeller: “Optics”, University science books, Mill Valley California, 1988, ISBN 0-935702-145-8 7. Bergmann, Schäfer “Lehrbuch der Experimentalphysik” Band III, Optik, Walter de Gruyter Verlag 8. Max Born And Emil Wolf, "Principles Of Optics", Pergamon Press, ISBN 0-08-018018 3. 9. Gerd Keiser: Optical Fiber Communications, McGraw-Hill Series in Electrical and Computer Engineering, Singapore, (2000) 10. Handbook of Fiber Optic Data Communication, Elsevier academic press, San Diego (USA) (2002) 11. Joseph C. Palais, Fiber Optic Communication, Prentice Hall, Englewood Cliffs, New Jersey (USA) (1992) 12. Govind P. Agrawal, Fiber-Optic Communication Systems, WILEY INTERSCIENCE, Rochester (USA) (2002)

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Photonics and Laser Technology (Eng)
	光子学与激光技术(英)
COURSE CODE	12002770
LOCATION	Ostbayerische Technische Hochschule Regensburg
SEMESTER	7
RESPONSIBLE FOR THIS COURSE	Prof. Dr. Rupert Schreiner
CREDITS	5
HOURS OR WEEKS	48 hours
COURSE OBJECTIVES	The students shall learn to know the principles of lasers. All standard laser materials (solid state, gas, dye, etc.) will be covered. Based on this knowledge they shall be able to read scientific publications in this field.
PREREQUISITES	Optical Tech., Math. Meth. Phys.
COURSE CONTENTS	1. Characterization of light Temporal and spatial coherence Photon statistic and blackbody radiator Sources of radiation 2. Interaction of electromagnetic waves with atomic systems Radiation field Emission and absorption of electromagnetic radiation Spontaneous and induced emission Two level system, thermal equilibrium Population density balance 3. Spectral lines and line shape Spectral line broadening 4. Physical elements of lasers Storage of light: Resonator types and their geometry Losses of resonators Modes in optical resonators Wavelength selection Q-switch Nonlinear optics, frequency doubling etc. 5. The laser principle Creation of a population inversion Three and four level system Amplification of light and feedback Theoretical efficiency of lasers Threshold condition Bandwidth and mode spectrum Dynamic of laser systems 6. Beam propagation The Gauss beam Focusing of laser beams Atmospheric transmission and turbulence 7. Example of real laser systems Gas laser: CO2 laser, Excimer laser, HeNe laser, Ar-Ion laser (including: Short introduction to gas discharge physics) Diode lasers Solid state laser: NdYag laser, ErYag laser Diode pumped solid state lasers Dye lasers

	8. Technical aspects of optical elements used in lasers Metal mirrors versus dielectric mirrors Brewster - plates Electro-optical active elements, Pockels and Kerr cell (Q-switch details) Polarizers Beam steering elements – Laser optics 9. Theory of Laser beam material interaction Metals, Plasma frequency Dielectrics, isolators, Semiconductors 10. Applications Cutting, welding, annealing, hole drilling Micro machining with lasers Lasers for measurement and analytics Distance measurement, rangefinders Other applications: CD player … 11. Eye Safety – Laser hazards
DIDACTIC METHODS	Lecture supported by blackboard or vizualizer and beamer, exercises, laboratory experiments
GRADING	Final exam (70%) + Performance report (30%);
BIBLIOGRAPHIES	1. A. Yariv: "Optical Electronics", Saunders College publishing, 1991

SYLLABUS "OPTOELECTRONIC ENGINEERING"	
DATE	June 2014
COURSE NAME	Bachelor Thesis (Eng)
	毕业设计(英)
COURSE CODE	12101370
LOCATION	Ostbayerische Technische Hochschule Regensburg
SEMESTER	7
RESPONSIBLE FOR THIS COURSE	Prof. Dr. Rupert Schreiner
CREDITS	12
HOURS OR WEEKS	12 weeks
COURSE OBJECTIVES	The ability to solve a complex task from the field of sensor technology and analytics independently in a given time frame. Competence in the application of theoretical scientific knowledge as an engineer. Qualifications for incorporation into subject areas that were not covered in the study. Ability to accept setbacks, close to sensible compromises and overcome obstacles. Skill in writing technical and scientific documentation.
PREREQUISITES	6th edition in the earliest Semester. Prerequisites are knowledge from 5 semesters study plan at least once every 60 credit points from the first study phase, an additional 30 CP from the 2nd Study section.
COURSE CONTENTS	In the thesis of the student solves independently with engineering work and thus on the basis of scientific methodology is a problem, be it or challenge their cumulative knowledge and skills acquired during the studies. The topic can be chosen and will be processed in industry or university. Lecturers and industrial companies regularly offer topics for editing. In any case, a lecturer at the University acts as a supervisor, contact and auditors. The work must be documented in writing; the assessment is based on the quality of results and documentation.
DIDACTIC METHODS	independent engineer working with documentation
GRADING	Fulfillment of the conditions at the beginning (see above) at any time. Extension is possible in case of illness or other, not by the student caused. If a student fails general examination regulations just one repetition is allowed, with a new theme.
BIBLIOGRAPHIES	

NAME	（英文名称）Applied Optics (Eng.)
	（中文名称）应用光学(英)
CODE	12003910
INSTRUCTOR	（英文姓名）Wei Zhang
	（中文姓名）张薇
CREDITS/HOURS	3 Credits/48 Hours
SEMESTER	1
TEACHING LANGUAGE	English
PREREQUISTES	Basic knowledge of geometry, Mathematics, Physics, etc.
AIMS	**The course aims to:** Focusing on optical engineering, students will obtain professional and improved knowledge of geometrical optics, and can use this knowledge into practice.
CONTENTS	**The course will cover the following** (please indicate teaching hours): 1. The basic principles of Geometrical optics. 2 teaching hours. 2. Image formation of symmetrical system made from spherical surfaces. 4 teaching hours. 3. Ideal optical system. 6 teaching hours. 4. Mirror and Prism systems. 6 teaching hours. 5. Selection of image rays in optical systems. 6 teaching hours. 6. Aberration theory. 3 teaching hours. 7. Basics of radiometry and photometry. 0 teaching hours. 8. Typical optical instruments (microscope, telescope, camera, and projector etc.). 9 teaching hours. 9. Exercise class. 3 teaching hours. 10. Experiment (1): The measurement of the lens' focal length using the magnification method. 2 teaching hours. 11. Experiment (2): nearsightedness, farsightedness and its correction. 2 teaching hours. 12. Experiment (3): The single lens' spherical aberration and chromatic aberration. 2 teaching hours.
LEARNING OUTCOMS	**Students will be able to:** **Knowledge and Understanding**: 1. Mastering the basic theory of geometrical optics. 2. Knowing well about the concepts of the basic laws of geometrical optics, Gaussian optics, aberrations etc. **Intellectual Skills**: 1. Understanding well about the ideal optical system. 2. Analyzing the aberrations of an optical system, knowing that what the main aberration of the system is. 3. Knowing about the basics of radiometry and photometry, and can use the knowledge into analyzing an optical system. **Practical Skills**: 1. Primary knowledge of lenses, analyzing and designing the optical system by laboratory experiment, such as, microscopy system, telescope system, objective lens and other optical elements. 2. Basic theory and dealing method of solving practical optical problems. 3. Knowing how to apply the knowledge into optical system. 4. Expanding student's thinking in the geometrical optics. After learning this course, students own the basic characteristic and skills of geometrical optics and can apply them into practice.
ASSESSMENT	**Examination form**: Partly Open-book Mode

	Grading: 50% written exam paper +20% experiments+30% normal performance
BIBLIOGRAPHIES	1. Lin Li, Applied optics, Beijing institute of technology Press, 2012 (second edition). 2. Xiangning Li, Hongzhi Jia, Rongfu Zhang, Hanmin Guo, Optical Engineering, Science Press, 2010. 3. Yu Daoyin, Tan Hengying, Optical Engineering, Mechanical industrial press, 2007 (second edition).

NAME	（英文名称）Electromagnetic Wave and Electrodynamics
	（中文名称）电磁场及电动力学
CODE	12003920
INSTRUCTOR	（英文姓名）Tao Geng
	（中文姓名）耿滔
CREDITS/HOURS	4/64
SEMESTER	3rd
TEACHING LANGUAGE	English
PREREQUISTES	Calculus, Linear Algebra, Mechanics
AIMS	**The course aims to**: Knowledge of the attribute of electromagnetics, the creation of electromagnetics and how electromagnetics works, and relativity electrodynamics. Insight into steady electromagnetics, the propagation of electromagnetics, waveguide, and radiation.
CONTENTS	**The course will cover the following** (please indicate teaching hours): 1. Vector Analysis (8 hours) The vector products; differential and integral calculus; spherical polar and cylindrical coordinates; the Helmholtz theorem. 2. Electrostatics (10 hours) Coulomb's law and electric field; Divergence and Curl of static electric field; Scalar potential of static electric field and its differential equation; Energy in static electric field; static electric field in dielectrics and conductors. 3. Magnetostatics (12 hours) The Lorentz force law; the Bito-Savart law; the divergence and curl of steady magnetic field; Magnetic vector potential; magnetic field in matter. 4. Electrodynamics (12 hours) Ohm's law; Faraday's law; inductance; the energy in electrodynamics; Maxwell's equations 5. Electromagnetic waves (16 hours) Electromagnetic waves in vacuum; reflection and transmission; absorption and dispersion; guided waves. 6. Relativity (6 hours) The geometry of relativity; the Lorentz transformations; relativistic mechanics.
LEARNING OUTCOMS	**Students will be able to**: **Knowledge and Understanding**: The students will acquire a knowledge about the concepts and mathematically formulated laws of electromagnetics. **Intellectual Skills**: The students can understand simple electromagnetic phenomena in nature. **Practical Skills**: The students will be able to solve simple technical problems of electromagnetic.
ASSESSMENT	**Examination form**: Tests **Grading**: 60% exams（knowledge + experiments）+40% performance
BIBLIOGRAPHIES	1. David J. Griffiths,《Introduction to Electrodynamics》, Beijing world publishing corporation, 2011 2. David J. Jackson,《Classical Electrodynamics》, Higher Education Press, 2010