



教學卓越計畫

Teaching Excellence and Learning Autonomy

A6-3-1 課程網頁國際化之建置－授課目標

系所：資訊工程系

學程：碩士

Course Descriptions of Undergraduate Program

Department of Computer Science and Information Engineering

Code	Credits	Course Name	Course Description
CS5011	2	Technical Writing	The two main objectives of this course are (1) to give the students a guideline to technical writing which involves writing styles and skills in research papers and scientific reports, and (2) to help the student to improve reading and writing skills. The contents of this course include: (1) the purpose and principles of technical writing, (2) a general pattern for research papers and scientific reports, (3) the writing schemes for Abstract, Introduction section, Method section, Results and Discussions section, and Conclusion section.
CS5031	0	Seminar (I)	The goal of this course is to learn how to read and present a journal paper related to his research field. Writing reports and questions are also needed in this class.
CS5053	0	Speeches in Information Technology	New material knowledge, new techniques, and new thought in different field would be expected to bring to our students here by sharing research results and experience of invited researchers and teachers from other organizations.
CS5032	0	Seminar (II)	The goal of this course is to learn how to read and present a journal paper related to his research field. Writing reports and questions are also needed in this class.
CS5053	0	Speeches in Information Technology	New material knowledge, new techniques, and new thought in different field would be expected to bring to our students here by sharing research results and experience of invited researchers and teachers from other organizations.
CS5033	0	Seminar (III)	The goal of this course is to learn how to read and present a journal paper related to his research field. Writing reports and questions are also needed in this class.
CS5034	0	Seminar (IV)	The goal of this course is to learn how to read and present a journal paper related to his research field. Writing reports

			and questions are also needed in this class.
CS5202	3	Software Engineering	This course covers the key aspects of software engineering and Development. Topics include: system engineering, software process, system modes and UML, object-oriented design, software requirement, and software testing. On completion of this course, students should be able to perform the following tasks: 1. understanding the principles of software engineering; 2. understanding different development stages/models; 3. understanding and experience in writing requirements and specifications; 4. understanding and experience in designing and rapid prototyping; 5. understanding large scale software maintenance; 6. understanding general CASE tools and experience with particular CASE tools.
CS5203	3	Parallel Computing	The goal of this course is to study the structure of parallel computing and to design the parallel programs. After completing this course, students will realize the following topics: (1)The platform of parallel computing; (2)The principle of designing parallel algorithm; (3)Basic parallel communication operations; (4)Analytical modeling of parallel programs; (5)Programming using the message passing paradigm; (6)Programming shared address space platforms; (7)Parallel algorithms and applications - Dense Matrix Algorithms, Sorting, Graph Algorithms, Dynamic Programming, etc.
CS5204	3	Pattern Recognition	The goal of this course is to provide the students with a basic knowledge of pattern recognition. The students will realize the following concepts in the course: 1.Classifiers based on Bayes decision theory 2.Linear/nonlinear classifiers 3.Feature selection 4.Feature generation 5.Context-dependent classification 6.System evaluation 7.Clustering algorithms
CS5205	3	Graph Theory	The course is aimed to study the related knowledge about graphs. After finishing the course, students will realize the following knowledge: (1)Basic introduction to graphs; (2)The related problems about graphs; (3)Graph algorithms; (4)The basic graphs; (5)Some special graphs and the algorithms on them; (6)The applications to graphs.

CS5206	3	Object Oriented Programming	<p>This course is aimed at introducing Object Oriented Programming . The following topics will be covered in this course:</p> <p>1.Object-Based Programming (1) Object concept (2) Define Classes (3) Overloading 2.Object-Oriented Programming (1)Inheritance (2)Encapsulation (3) Polymorphism</p>
CS5207	3	Mobile Communication	<p>This course gives an introduction to the concepts of mobile computing. Topics to be covered are: cellular networks, wireless networks, mobile application, security, and energy-effective issues. The students will realize the following mobile computing basics after finishing this course: 1. realize the operation of wireless networks, such as channel allocation, multiple access, handoffs, or location management; 2. understand the operation of various protocols, such as MAC protocol, routing, or Ad-hoc networking; 3. develop mobile applications, such as mobile agent, or data broadcasting.</p>
CS5208	3	Fomal Language	<p>To provide a rigorous mathematical framework for two general areas: that of language description and that of computation; to examine the relation between the two and to consider practical applications from Computer Science and Linguistics.</p>
CS5209	3	Random Process	<p>The content contains the basic probability concept, discussion and analysis of such various kinds of random procedures as Poisson procedure, Renewal procedure and discrete-time Markov Chains,etc..</p>
CS5210	3	Technique on Electronic Commerce	<p>The goal of this course is to provide students with a basic knowledge of the Electronic Commerce (i.e., EC). The main topics include EC introduction, Network protocols of EC, EC Applications, Secure EC, and Flows in EC. Students will realize the following backgrounds of this course after completing the course: 1. The function of the technology of EC; 2. The Applications and Flows in EC; 3. The secure EC; 4. Build an EC web system with the advantages of secure and flows.</p>
CS5211	3	High Speed Networking	<p>The goal of this course is to provide the students with a basic knowledge of Internet Technologies. The students</p>

			will realize the following high speed network technologies after finishing this course: 1. High Speed Network Concept 2. Fast Ethernet 3. Gigabit Ethernet 4. FDDI Network 5. ATM Network 6. High Speed Wireless Network
CS5212	3	Wireless Networks	The goal of this course is to provide students with a basic knowledge of the wireless networking. The main topics include wireless networking introduction, Physical Layer of Wireless Networks, Data-link Layer of Wireless Networks, Network Layer of Wireless Networks, and Handoff and Mobile IP of Networks. Students will realize the following backgrounds of this course after completing the course: 1. The function of the lower three layers of wireless network; 2. The operation of inter-layer in wireless networks; 3. Understand the operation of protocols in wireless networks; 4. Understand the algorithms and concepts of layered protocols in wireless networks.
CS5213	3	Distributed Systems	This course provides an overview on distributed system design issues, such as IPC, RPC, distributed file system, transactions, fault tolerance and distributed object technology.
CS5214	3	Queueing Theory	The goal of this course is to provide students with a basic knowledge of the queueing theory. The main topics include Probability introduction, Queueing introduction, Markov processes, Various Markov process and the state probability determination, and Simulation modeling and analysis. Students will realize the following backgrounds of this course after completing the course: 1. The function of Queueing system; 2. Discrete and Continuous Markov chains; 3. The determination of state probability of each state of Markov processes; 4. Simulation modeling and analysis.
CS5215	3	Computational Biology	This course will introduce the fundamentals of computer algorithms that support to study and provide feasible solutions for the related topics on bioinformatics.
CS5216	3	Information theory	Introduction to Random Variables, Random Processes, Distribution, Entropy, Relative Entropy, Conditional

			Entropy, Mutual Information, Channel capacity, and Gaussian Channels.
CS5217	3	Multimedia Communications	The purpose of this course is to let students find out about the basic structure and application of the multimedia communication. The contents of the course include lossless data compression, lossy data compression, static image compresses standard, speech and audio compresses standard, video coding and Multimedia network.
CS5218	3	Pervasive Computing	This course gives an introduction to the concepts of pervasive computing. Topics to be covered are: positioning and tracking technologies, location-aware computing, user interface and interaction models, context-aware computing, smart device and intelligent environment, programming paradigms for pervasive computing. The students will realize the following basics after finishing this course: 1. realize the vision, principles, systems of pervasive computing; 2. realize the core concept of pervasive computing; 3. design, develop, and evaluate pervasive computing applications.
CS5222	3	Algorithms	The goal of this course is to provide the students with a basic knowledge of computer algorithm. The covered issues in this course includes 1. Complexity of algorithms and lower bounds of problems 2. NP-complete 3. Greedy method 4. Divide-and-conquer 5. Tree searching strategies 6. Prune-and-search strategy 7. Dynamic programming .
CS5239	3	Fuzzy Theory and Application	People will often face the uncertainty to the incident while making decision analysis, fuzzy set and deriving the theory to offer some simulation deterministic theory methods relevantly, this course content includes the introduction to the basic theory of the fuzzy set, which make students understand intelligent basic idea and application in the controlled field of all kinds of methods that controlled. 1. Origin and application 2. Introduction to fuzzy mathematics 3. Fuzzy relation and fuzzy operation 4. Fuzzy logic and fuzzy language 5. Structure of the fuzzy control system 6. Fuzzy Cluster 7. Solve the fuzzy course of melting 8. Fuzzy system design.

CS5401	3	Silicon IP Design	Learn the most-updated state-of-the-art reuse IP design methodologies and techniques. Familiar with the modern front-end SOC design flow from specification to the gate level netlist. Familiar the emerging HDL/HVL languages and tools.
CS5402	3	Adaptive Signal Processing	The goal of this course is to introduce seniors and graduate students the principles and applications of adaptive signal processing. Adaptive signal processing has a wide variety of applications, particularly, in digital communication systems, radar, biomedical engineering and others. This course provides a comprehensive coverage of the basic principles of adaptation. It covers various adaptive signal processing algorithms such as the LMS algorithm, RLS algorithms and some applications, such as adaptive interference canceling, noise cancellation, etc.
CS5403	3	VLSI Physical Design	The purpose of this course is to teach students the principles and practices of VLSI design, and allow them to be familiar with the typical structures and design styles of the basic circuits, building blocks and major application systems. Sufficient material is covered to enable the student pursuing advanced studies in low power and high speed design techniques. Besides, the student will also learn skills which will shorten the design phase. Appropriately design projects which use real-world CAD environment are provided to help the student in implementing , exercising and mastering the subject matter immediately after exposition.
CS5404	3	Computer Architecture	This course provides an introduction both to the basics of computer architecture and the fundamental design concepts of high-performance computer systems. Topics covered include: design of stored program computers, instruction sets, design of arithmetic and logic units, hardwired control design and microprogrammed design, pipelined computer design, pipeline conflicts, RISC and CISC architectures, vector processing, memory organization, cache mapping, associative memory, computer arithmetic, interfacing input/output units with processors, RAID, multiprocessors ,cache coherence problem and MESI

			snoopy protocol .
CS5405	3	Digital Signal Processing	The course provides an introduction to the concepts of digital signal processing (DSP). It is designed to give juniors a thorough understanding of theory and techniques needed for the analysis of discrete-time signals. Topics include the fundamental concepts of discrete-time signal, discrete-time signal system, discrete-time Fourier transform , Z-Transform.
CS5414	3	Embedded Software Design	This course is primarily intended for students interested in learning how embedded application software is to be designed efficiently and correctly.
CS5415	3	Embedded System Integration	This course will show students how to develop a complete Embedded system, including processors, storage subsystems, interface, and operating system. At the end of this course the students should be able to: (1). integrate components into a system; (2). recognize how components interfere and interact.
CS5901	2	Special Topic on Networking (I)	This course focuses on the emergent research topics related to networking. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of networking technologies; 3. solve research problems.
CS5905	2	Special Topic on Software Engineering (I)	This course focuses on the emergent research topics related to software engineering from the discussion of research papers. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of software engineering technologies; 3. solve research problems.
CS5909	2	Special Topic on Artificial Intelligence (I)	Read and discuss on the artificial intelligence papers
CS5913	2	Special Topic on Parallel and Distributed Systems (I)	This course is aimed at discussing the topic of parallel and distributed systems. The students will realize the following important topics after finishing this course: Parallel and Distributed System Architecture, Parallel and Distributed Computing, Internet Computing, Cluster Computing, Grid Computing and Mobile Computing.
CS5917	2	Special Topic on Bio-Informatics(I)	How bioinformatics works for gene and genomic research would be briefly introduced to the undergraduate students

			who have taken courses of genetics and molecular genetics/biology (or courses equivalent to).
CS5921	2	Special Topic on Integrated Circuit(I)	1. This course presents the analysis and design of integrated circuits via CAD tool,and then it will be the research basis. 2. Hspice Content: Introduction to workstation and cadence design environment (design flow overview), Circuit description and analysis, MOS design of a selected example, Hspice simulation and critical path analysis.
CS5925	2	Special Topic on Signal Processing (I)	The goal of this course is to teach the students to implement the signal processing on image processing with speech processing. In this course the students will learn include the time domain and frequency domain of analog signal · discrete signal · analog system and discrete system. The students will realize the following basics after finishing this course: 1. the convolution theory, 2. the Fourier transform, 3. the sampling theory, 4. the application of digital filter theory. Finally, the students will use above knowledges to implement on image processing and speech processing.
CS5933	2	Special Topic on Information Security and Computation Theory (I)	This course is aimed at discussing the topic of Information Security and Computation Theory. The students will realize the following important topics after finishing this course: Cryptography, Information Security, Computation Theory, Design and Analysis of Computer Algorithms and their related technologies. Some recent papers will be also discussed.
CS5219	3	Neural Networks and Its Applications	Fundamental concepts and models of artificial neural systems Single-layer perception classifiers Multilayer feedforward networks Associative memories Matching and self-organizing networks Applications of neural algorithms and systems Neural networks implementation
CS5220	3	Source Coding	This course introduces the principles and practice of source coding,emphasizing the more widely considered techniques for speech,audio, natural images, and video.
CS5221	3	Cryptography	This course is an introduction to the basic theory and practice of cryptographic techniques used in computer

			<p>security. The students will realize the following important topics after finishing this course: Number theory, Symmetric Cryptosystem (DES, Triple DES, AES), Public-key Cryptosystem (DH,RSA,DSS), secure hash function (MD5, SHA), and digital signature et al.. Moreover, the Internet security and electronic commerce are also include in this course. Finally, some recent papers will be discussed.</p>
CS5223	3	Software Component Technology	<p>This course gives an introduction to the concepts of software development based on software components. Topics to be covered are: object-oriented design, design pattern, unit testing, component design and implementation. On completion of this course, students should be able to perform he following tasks: 1. develop software by using object-oriented design methodology; 2. develop software component using a specific program language; 3. test software components; 4. develop application based software components.</p>
CS5224	3	Data Mining	<p>This course concentrates on the processes to discover previously unknown, useful knowledge or rules from huge data to support decision making. The students will learn the different algorithms in data mining and their potential applications.</p>
CS5225	3	Multiprocessor System	<p>This course introduces the theories of parallel computing and covers the practical issues of multiprocessor systems. Students will learn how to design efficient and scalable parallel applications and multiprocessor systems-on-chips.</p>
CS5226	3	Next Generation Internet Technology	<p>The goal of this course is to provide students with a basic knowledge of the computer networking. The main topics include Internet introduction, Network layer of Next generation Internet, Transport layer of Next generation Internet, QoS-based protocols for Next generation Internet. Students will realize the following backgrounds of this course after completing the course: 1. The function of Next generation Internet; 2. The functions of Network/Transport layers of Next generation Internet; 3. Understanding the QoS-based protocols; 4. Understanding the algorithms and concepts of Next generation Internet.</p>

CS5227	3	Bio-Information	This course is to give an overview of bioinformatics and discuss current research topics.
CS5228	3	Biochip	This course introduces current research topics in the biochip, and then to demand the biochip' s research and commercialized course and future market on biomedicine.
CS5229	3	Digital Communications	We will study the signal and spectra 、 formatting and baseband 、 bandpass modulation and demodulation 、 communication link analysis 、 channel coding and their applications.
CS5230	3	Image Processing	This course is mainly understanding the fundamentals of image processing, and its contents consist of :(1) image acquisition, display, (2) image sampling and quantization, (3) image enhancement, (4) image restoration, (5) image compression, and (6) image segmentation.
CS5231	3	Operating System	The goal of this course is to provide the students with a basic knowledge of the kernel of operating systems, the evaluation techniques, and the design and management of an operating system. The main topics include system structure, user interfaces, process management, memory management, file systems, I/O systems, protection, and distributed systems. The students will realize the following topics after finishing this course: 1.the concepts and the techniques of the kernel of operating systems, 2. the evaluation techniques of the kernel techniques of operating systems, 3. the design and management of an operating system.
CS5232	3	Virtual Reality System	In this course we will introduce the development of the VR and implement a 3D interactive system. we will create 3D models and scenes using a 3D modeling tool. In the final project the student will realize a system using a real time 3D engine to manipulate 3D objects and camera in the scene, and practice the effects of collision detection.
CS5233	3	Networks Performance Analysis and Simulations	The goal of this course is to introduce seniors and graduate students the principles and technology of networks performance analysis and simulations. We will influence the efficiency of the network and common factor of quality to probe into, and confirm the theory analysis studied in way of doing simulation in fact, promote student's

			professional ability in the field of network technology.
CS5234	3	Data Compression	This course is mainly understanding the fundamentals of data compression, and its contents consist of : (1). lossless compression, (2). Huffman coding, (3). predictive coding, (4). lossy coding, (5). scalar/vector quantizations, (6). wavelet-based compression.
CS5235	3	Grey System and Applications	Two main branches in the grey theory are first introduced in this course: grey models (GM) and grey relational analysis (GRA). Then GM and GRA are applied in digital signal processing and other fields.
CS5238	3	Information Retrieval	The goal of this course is to provide the students with a basic knowledge of information retrieval. The students will realize the following concepts in the course: Web Spider, Text Parsing, Representation Model, Indexing, Search Engine, Document Classification, Information Extraction and Text Mining?
CS5409	3	Analogy IC Design	1. This course presents the analysis and design of various analog integrated circuits via CAD tool. 2. Content: Introduction to Analog Design, CMOS technology, basic MOS Device Physics and MOS modelling, CMOS device characteristics(resistor and capacitor), CMOS subcircuits(Passive and Active Current Mirrors), Single-Stage Differential Amp., Comparator design, OP Amp. design (frequency compensation), High-performance OP, DAC/ADC design, Switched-Capacitor Circuit design.
CS5410	3	RF-IC Design	This course introduces the non-linearity of the RF system at the beginning. Then digital communication technologies such as the spectrum spread, the architecture of the receiver is discussed. Finally the front-end RFIC of the transceiver such as LNA, mixer, VCO, PA and frequency synthesizer are demonstrated.
CS5412	3	Speech Signal Processing	This course provides a fundamental knowledge of speech signals and speech processing techniques. Topics include digital speech coding, speech enhancement, speech synthesis, speech recognition, and speech verification.
CS5413	3	Advanced Programmable IC Design	This course introduces CPLD and FPGA with logic design and simulation issues. Also, an introduction to VHDL is given with finite state machines design and other

			design examples.
CS5416	3	Design and Simulation for Digital Control Systems	The discrete-data and digital control systems have been applied in wide applications in recent years. These systems have gained popularity and importance in industry because in part to the advances made in digital computers for controls and, more recently, in microprocessors and digital signal processors. Therefore, the goal of this course is to provide the students with a basic knowledge of digital control systems and to establish the students' ability of linking the controller design with a digital system. After finishing this course, 1. The students will possess the basics and concepts of controller designs. 2. The students will be able to analyze a digital control system based on a computer-aided platform. 3. The students will realize how to embed a theoretic controller to an actual application.
CS5902	2	Special Topic on Networking (II)	This course focuses on the emergent research topics related to networking. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of networking technologies; 3. solve research problems.
CS5906	2	Special Topic on Software Engineering (II)	This course focuses on the emergent research topics related to software engineering from the discussion of research papers. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of software engineering technologies; 3. solve research problems.
CS5910	2	Special Topic on Artificial Intelligence (II)	Read and discuss on the artificial intelligence papers
CS5914	2	Special Topic on Parallel and Distributed Systems (II)	This course is aimed at discussing the topic of parallel and distributed systems. The students will realize the following important topics after finishing this course: Parallel and Distributed System Architecture, Parallel and Distributed Computing, Internet Computing, Cluster Computing, Grid Computing and Mobile Computing.
CS5918	2	Special Topics on Bio-informations(II)	How bioinformatics works for gene and genomic research would be briefly introduced to the undergraduate students who have taken courses of genetics and molecular

			genetics/biology (or courses equivalent to).
CS5922	2	Special Topic on Integral Circuit (II)	1. This course presents the analysis and design of integrated circuits via CAD tool, and then it will be the research basis. 2. Hspice Content: Introduction to workstation and cadence design environment (design flow overview), Circuit description and analysis, MOS design of a selected example, Hspice simulation and critical path analysis.
CS5926	2	Special Topic on Signal Processing (II)	The goal of this course is to teach the students to implement the signal processing on image processing with speech processing. In this course the students will learn include the time domain and frequency domain of analog signal · discrete signal · analog system and discrete system. The students will realize the following basics after finishing this course: 1. the convolution theory, 2. the Fourier transform, 3. the sampling theory, 4. the application of digital filter theory. Finally, the students will use above knowledges to implement on image processing and speech processing.
CS5934	2	Special Topic on Information Security and Computation Theory (II)	This course is aimed at discussing the topic of Information Security and Computation Theory. The students will realize the following important topics after finishing this course: Cryptography, Information Security, Computation Theory, Design and Analysis of Computer Algorithms and their related technologies. Some recent papers will be also discussed.
CS5903	2	Special Topic on Networking (III)	This course focuses on the emergent research topics related to networking. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of networking technologies; 3. solve research problems.
CS5907	2	Special Topic on Software Engineering (III)	This course focuses on the emergent research topics related to software engineering from the discussion of research papers. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of software engineering technologies; 3. solve research problems.
CS5911	2	Special Topic on Artificial	Read and discuss on the artificial intelligence papers

		Intelligence (III)	
CS5915	2	Special Topic on Parallel and Distributed Systems (III)	This course is aimed at discussing the topic of parallel and distributed systems. The students will realize the following important topics after finishing this course: Parallel and Distributed System Architecture, Parallel and Distributed Computing, Internet Computing, Cluster Computing, Grid Computing and Mobile Computing.
CS5919	2	Special Topics on Bio-informations(III)	How bioinformatics works for gene and genomic research would be briefly introduced to the undergraduate students who have taken courses of genetics and molecular genetics/biology (or courses equivalent to).
CS5923	2	Special Topic on Integrated Circuit (III)	1. This course presents the analysis and design of integrated circuits via CAD tool, and then it will be the research basis. 2. Hspice Content: Introduction to workstation and cadence design environment (design flow overview), Circuit description and analysis, MOS design of a selected example, Hspice simulation and critical path analysis.
CS5927	2	Special Topic on Signal Processing (III)	The goal of this course is to teach the students to implement the signal processing on image processing with speech processing. In this course the students will learn include the time domain and frequency domain of analog signal · discrete signal · analog system and discrete system. The students will realize the following basics after finishing this course: 1. the convolution theory, 2. the Fourier transform, 3. the sampling theory, 4. the application of digital filter theory. Finally, the students will use above knowledges to implement on image processing and speech processing.
CS5935	2	Special Topic on Information Security and Computation Theory (III)	This course is aimed at discussing the topic of Information Security and Computation Theory. The students will realize the following important topics after finishing this course: Cryptography, Information Security, Computation Theory, Design and Analysis of Computer Algorithms and their related technologies. Some recent papers will be also discussed.
CS5904	2	Special Topic on Networking (IV)	This course focuses on the emergent research topics related to networking. The students are able to perform the

			following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of networking technologies; 3. solve research problems.
CS5908	2	Special Topic on Software Engineering (IV)	This course focuses on the emergent research topics related to software engineering from the discussion of research papers. The students are able to perform the following tasks after finishing this course: 1. the reading skill of research papers; 2. realize current state of software engineering technologies; 3. solve research problems.
CS5912	2	Special Topic on Artificial Intelligence (IV)	Read and discuss on the artificial intelligence papers
CS5916	2	Special Topic on Parallel and Distributed Systems (IV)	This course is aimed at discussing the topic of parallel and distributed systems. The students will realize the following important topics after finishing this course: Parallel and Distributed System Architecture, Parallel and Distributed Computing, Internet Computing, Cluster Computing, Grid Computing and Mobile Computing.
CS5920	2	Special Topic on Bio-Informatics(IV)	How bioinformatics works for gene and genomic research would be briefly introduced to the undergraduate students who have taken courses of genetics and molecular genetics/biology (or courses equivalent to).
CS5924	2	Special Topic on Integrated Circuit (IV)	1. This course presents the analysis and design of integrated circuits via CAD tool,and then it will be the research basis. 2. Hspice Content: Introduction to workstation and cadence design environment (design flow overview), Circuit description and analysis, MOS design of a selected example, Hspice simulation and critical path analysis.
CS5928	2	Special Topic on Signal Processing (IV)	The goal of this course is to teach the students to implement the signal processing on image processing with speech processing. In this course the students will learn include the time domain and frequency domain of analog signal 、 discrete signal 、 analog system and discrete system. The students will realize the following basics after finishing this course: 1. the convolution theory, 2. the Fourier transform, 3. the sampling theory, 4. the application of digital filter theory. Finally, the students will use above knowledges to implement on image processing

			and speech processing.
CS5936	2	Special Topic on Information Security and Computation Theory (IV)	This course is aimed at discussing the topic of Information Security and Computation Theory. The students will realize the following important topics after finishing this course: Cryptography, Information Security, Computation Theory, Design and Analysis of Computer Algorithms and their related technologies. Some recent papers will be also discussed.