**COURSE DESCRIPTIONS**

**Universidad San Ignacio de Loyola (USIL**

**Lima, Peru**

**Spanish Language & Peruvian/Andean Studies**

[Elementary Spanish](javascript:%20expandList('A67'))  
This course is for the beginner level Spanish speaker. It uses the four language aspects: reading, writing, listening, and speaking - for the student to familiarize himself/herself with the basics of the Spanish language as well as historical and cultural aspects of Latin America and Spain.   
Prerequisite: none   
Credits: 3

[Intermediate Spanish](javascript:%20expandList('A68'))  
This course is for the lower intermediate level Spanish speaker. It uses the four language aspects: reading, writing, listening, and speaking - for the student to familiarize himself/herself with the basics of the Spanish language as well as historical and cultural aspects of Latin America and Spain.   
Prerequisite: Basic Spanish   
Credits: 4

[Advanced Spanish](javascript:%20expandList('A69'))  
This course is for the intermediate to advanced level Spanish speaker. It uses the four language aspects: reading, writing, listening, and speaking - for the student to familiarize himself/herself with the basics of the Spanish language as well as historical and cultural aspects of Latin America and Spain.   
Prerequisite: Intermediate Spanish   
Credits: 4-6 (90 contact hours)

[National Reality & Globalization](javascript:%20expandList('A57'))  
National Reality and Globalization is a practical course which will introduce the students in their first semester to the social, economic, geographic and cultural characteristics of Peru. Special emphasis should be put on the potential of our country's overall development and its relationship with the major trends emerging in the world of the XXI century. The course aims for students to investigate, find and analyze information on the country and to critically interpret the impact of the phenomenon of globalization on the ecology, economy, social and cultural network in a mega diverse, multilingual and multicultural environment such as Peru.   
Prerequisite: none   
Credits: 4

[Peruvian Economy](javascript:%20expandList('PeruvianEconomy'))  
Theoretical course aimed to providing tools to the students enabling them to carry out a critical analysis of the different areas and sectors of the Peruvian economy such as fiscal policy, monetary policy, and the development of the most important sectors of the country as tourism, mining and industry among others. Also develop themes of national interest resulting from market failures such as globalization, poverty in the country and employment, as well as policies that contribute to the governability of the country.   
Credits: 4

**Business & Economics**

[Business Administration](javascript:%20expandList('A2'))  
This is a theoretical and practical course for students in their first semester. It is designed to foster an entrepreneurial attitude and provide management tools for students to accomplish an entrepreneurial initiative in the future. The content of this course includes topics such as the Management Process, how a business operates, how it is organized, who manages it and its relation to the environment. Moreover, emphasis is put on the Business Plan as a key tool to evaluate business ideas and/or opportunities.   
Prerequisite: none   
Credits: 4

[Business Management](javascript:%20expandList('A3'))  
This is a theoretical and practical course for students in their second or third semester. It examines the core functions of management in the modern business enterprise. Students will gain tools with which they will be able to analyze and evaluate businesses and their environments. This course explores the building blocks of decision making and organizational strategies which influence the management process, taking into account key issues such as business ethics, communication, and corporate culture.   
Prerequisite: Business Administration   
Credits: 4

[Introduction to Economics](javascript:%20expandList('A6'))  
This course aims to give students the fundamentals of economic theory as a basis for understanding everyday economic issues arising from households' decisions, markets' equilibriums, and macroeconomic policies. By the end of the course, you should know the following:

* Gain insight into the economist's way of thinking
* Understand today's concerns on economic issues
* Learn to use the core tool of supply and demand
* Understand the fundamentals of economic growth
* Learn the fundamentals of economic policy (fiscal and monetary policies)

Credits: 4

[Microeconomics](javascript:%20expandList('A7'))  
The course aims to provide students with the fundamentals of the behavior of economic agents (consumers and firms) in order to understand the functioning of markets in real world business environments. The following topics comprise the basic structure of the course:

* Consumer's Choice: individual and market demand
* Firm's Choice: firm and market supply
* Competitive and non-competitive markets: supply and demand
* Extensions on market failures: game theory and information economics

Prerequisite: General Economics   
Credits: 4

[Macroeconomics & Business](javascript:%20expandList('A8'))  
This is a theoretical course complemented with case studies, aimed at developing concepts and tools in order to analyze the effect of macroeconomic policies and how international events impact on decisions taken by different firms.   
Prerequisite: General Economics, Microeconomics for Business   
Credits: 4

[International Business](javascript:%20expandList('A9'))  
This is a theoretical and practical course for students in their first semester. The objective is to provide students with insight into the International Business field, while learning about the various concepts of commercial transactions between two or more countries, and understanding the difference between a local and an international operation. The course should also improve the students' ability to understand the various factors that must be considered in order to launch an international operation and increase the students' capability to comprehend the nature of International Business at a micro and macro level.   
Credits: 4

[Marketing Management](javascript:%20expandList('A17'))  
The purpose of this course is to teach students in the use of tools related to their future marketing management professional careers, in order to achieve the marketing goals of an organization. The intention of this course is to have the students blend knowledge with creativity and determination, and develop each student?s competency to prepare him/her for what is often required of a marketing manager: making decisions with limited information.   
Credits: 3

[Writing for Business](javascript:%20expandList('A52'))  
This course aims to equip students with the necessary tools for succeeding at writing while doing business negotiations. The course will focus on the following aims: (1) learn to use such negotiation strategies as writing a coherent e-mail, composing an appealing business letter, showing attractive power point presentations; (2) become familiar with a variety of readings based on case study situations and be ready to convince an audience and foster debate using persuasion; (3) become more critical thinkers and more analytical readers; (4) learn negotiating techniques applicable to their future careers; (5) practice ethical behavior at all times.   
Credits: 2

[Monetary Theory](javascript:%20expandList('MonetaryTheory'))  
The purpose of this course is to teach students in the use of tools related to their future marketing management professional careers, in order to achieve the marketing goals of an organization. The intention of this course is to have the students blend knowledge with creativity and determination, and develop each student?s competency to prepare him/her for what is often required of a marketing manager: making decisions with limited information.   
Credits: 4

[Strategic Marketing Planning](javascript:%20expandList('StrategicMarketingPlanning'))  
Any company that intends to grow and develop over a long period of time must have a strategic plan. Strategic plans are like placing road signs where there are no roads. This tells us two very clear differences between a strategic plan and a marketing plan. The first one tells us how we are going to face major challenges, spanning from growth to crisis of our core business, maintaining the essence of who we are as a company. The second is how to lay the next kilometre of pavement to make that road. Finding a balance between the cost of that kilometre and the contour of the terrain (the shape of the market) and the distant objective we want to reach is going to be your job. Anyone can write a marketing plan for a year. Only those who can see the larger picture can steer a company through the years without losing course. Those people need to learn how to align every unit inside a company towards a distant goal that not everyone will understand or see. It will be the job of a bold and strong marketing leader to see those plans through.   
Credits: 3

[International Operations](javascript:%20expandList('InternationalOperations'))  
The course covers the effective supply chain management. With respect to planning, it uses a multi-layered approach of different objectives and time frames as well as the different roles it entails. With respect to execution, the course seeks to identify how process design, resource management and state-of-the-art technology can lead to maximum efficiency.   
Credits: 4

[Global Business Strategy](javascript:%20expandList('A25'))  
This course covers the theory and practice of management and how to relate it to internal and external factors as well as management tools necessary to devise and manage a global corporate strategy. At the end of this course the student will be able to apply managerial knowledge as well as management tools in the workplace.   
Credits: 4

[Global Management Skills](javascript:%20expandList('A26'))  
The course has as its main objective to expose the students to the multicultural challenges of global leadership according to the demands of the current international markets. This course should provide the students understanding of theory and concepts on these subjects and improve their ability to perform successfully across cultures while developing global management skills. The course is both theoretical and practical. It has the goal to contribute in the development and education of global managers who will lead their organizations adapting to the future and constant changes with high tolerance to unfamiliar situations and respect to diverse cultures.   
Credits: 4

**Tourism & Hospitality**

[Bartending Workshop](javascript:%20expandList('A25aa'))  
This workshop covers the practical and theoretical aspects behind the bar. This basic bar workshop will teach students step by step the fascinating world of cocktail making. Students will be able to identify and apply all the elements and materials used to run a bar efficiently and to dominate the basic skills of cocktail making and new tendencies of creativity to introduce new cocktails.   
Prerequisite: Food and Beverage Service   
Credits: 2

[Food & Beverage Operations](javascript:%20expandList('A26ba'))  
This course is an introduction to the management of food and beverage services which is divided into 2 areas: the theoretical part and the laboratory part. The course will allow the student to have a better understanding and application of the control process, the menu analysis and planning, as well as sales and human resources in the food and beverage industry. The student will be able to identify and understand the management and operations of dining from a customer service point of view; and to analyze with the intent of giving the necessary tools for an efficient decision taking   
Prerequisite: none   
Credits: 2

[Introduction to Gastronomy](javascript:%20expandList('A27'))  
This course represents the first approach that the students receive regarding gastronomy as a complex and rich concept. In this regard, the students will be provided with specific cognitive tools (topics concerning food, geography, social and cultural aspects within each country) complementing this information with historic and gastronomic facts. Hence, the students will be able to identify, understand and discuss the major aspects of an evolving human need. The course will include the following topics:

* Food History
* Main worldwide gastronomic actors
* Industrialization of food and the Hygiene factor
* Gastronomic heritage and culture

Prerequisite: none   
Credits: 3

[Tourism Marketing Management](javascript:%20expandList('A39'))  
This course will provide a strategic vision of the Tourism Sector, from the Marketing Director?s perspective. Students will be able to apply the main marketing tools and concepts to the Tourism Sector Dynamics. Special emphasis will be given to the analysis of the Peruvian Tourism Sector as well as the main international tourism markets.   
Prerequisite: none   
Credits: 3

[Eco-Efficiency in the Hospitality Industry](javascript:%20expandList('EcoEfficiency'))  
The course aims to understand and apply the strategies of eco-efficient hospitality operations, providing the theoretical basis as well as advice taken from case studies evaluated in groups. It starts with a basic knowledge of major and global environmental problems and national eco-efficient management uses on hospitality operations, then proceed to diagnose and evaluate them through a life cycle analysis and an application of environmentally and socially friendly strategies.   
Credits: 4

[Customer Service](javascript:%20expandList('CustomerService'))  
The nature of this course is theoretical - applicative, our purpose is to offer concepts, methods and systems to our students that assure a service quality delivery, understanding the direct impact in the customer satisfaction and loyalty as well as external as internal. We pursue to sensitize the student in the creation of a service culture into the companies they will work, as future leaders of the industry.   
Credits: 4

[Tourism Development](javascript:%20expandList('TourismDevelopment'))  
Theoretical-practical course that provides students with the necessary knowledge and methodology to carry out the strategic planning process by directing it towards the Tourism Sector. It also allows students to develop an understanding of the particularities of the various products and travel and tourism services, according to the market needs and the objectives of the company or the government. Students will review marketing strategies, work processes and marketing plans applied to case studies in order to develop innovative and sustainable tourism products, both in the public and private sectors.   
Credits: 4

[Food and Beverage Marketing](javascript:%20expandList('food'))  
This is a theoretical and application course which aims to have the students identify and recognize the basic concepts, strategies and tools that will let them understand the development of this functional area and its relevance to organizations in the food and beverage sector. Throughout the course, the students will deal with concepts of marketing, consumer behavior, segmentation and USIL, PERU - ENGLISH COURSE LIST - SEMESTER IN LIMA Page 13 market research, positioning strategies, and tenant mix analysis in the service sector with emphasis on food and beverages, which together will allow interpreting everyday situations in the exercise of this discipline. At the end of this course the students are expected to submit a project applying the concepts developed in it.   
Credits: 4

[Introduction to Wines](javascript:%20expandList('IntroductiontoWines'))  
This course is applicative and conceptual in nature. It aims to have the students apply techniques of wine tasting, and develop their sensory skills. The course also explores topics related to wine geography, wine science and sommelier service.   
Credits: 2

[Culinary Skills I](javascript:%20expandList('CulinarySkillsI'))  
The purpose of this theory and application course is for students to learn basic cooking techniques, taking into account strict health standards, adequate techniques for each product handled in class, and the application of cutting standards. Studentsâ€™ attitude toward difficulties encountered will be evaluated as they develop manual, sensorial and tasting skills applied to cuts and cooking methods, light and dark broths, clarifications, thickeners, stable and unstable emulsions, and basic cold and hot sauces.   
Credits: 4

[Culinary Skills II](javascript:%20expandList('CulinarySkillsII'))  
The purpose of this theory and application course is for students to apply basic techniques for cutting and cooking vegetables, recognize different types of meat and fish, and use cleaning, cooking and presentation techniques when providing a service. Students should take food safety, preservation and health standards and procedures into account. In addition, they should develop positive attitudes toward responsibility and teamwork. This course covers the following topics: meat, fish and seafood; cleaning and cooking techniques; basic broths and sauces.   
Credits: 4

[Culinary Skills III](javascript:%20expandList('CulinarySkillsIII'))  
The purpose of this theory and application course is for students to apply the health and hygiene standards learned during the second semester, as well as the basic techniques for cutting and cooking vegetables. They will learn to recognize different types of meat and fish and techniques for cleaning and cooking them, as well as how to present them for serving. They will also learn to design USIL, PERU - ENGLISH COURSE LIST - SEMESTER IN LIMA Page 14 and prepare a balanced menu with a time limit, as well as to apply basic pastry techniques learned during semester III. They will learn techniques for presenting and decorating buffets as well. Studentsâ€™ attitude toward difficulties encountered, their work style and their application of the techniques learned will be evaluated.   
Credits:4

**General Electives**

**English, Arts, Psychology, Sociology, Science, Engineering**

[English Composition](javascript:%20expandList('A50'))  
This course aims to equip students with the basic skills of composing quality college-level essays. Students will be made aware that writing is both a process of discovery and skill. The course will focus on the following aims: (1) Explore and learn to use such compositional strategies as writing a coherent sentence, compound sentence using transitions, pre-writing skills, identifying and formulating the thesis statement, sourcing and citing supporting evidence, revising, editing and proofreading; (2) become familiar with a variety of essays based on such rhetorical patterns as process analysis, description, illustration, comparison/contrast and argumentation/persuasion; (3) become more critical thinkers and more analytical readers, in order to be able to evaluate possible research sources; (4) learn basic research techniques which will be applied to a short research paper due at the end of the semester; and (5) practice ethical behavior at all times, always using one?s own words in all writing assignments and avoiding plagiarism in all its forms.   
Prerequisite: English VI   
Credits: 2

[Public Speaking](javascript:%20expandList('A51'))  
An introductory Public Speaking course stresses the organization and presentation of the extemporaneous speech in a variety of settings. The goal of this course is to incorporate typical speaking assignments into situations students might face in their personal and professional lives. It involves the study of the basic steps in preparing and delivering any speech. Tasks and discussion questions reinforce the information through application and practice. The concepts learned are utilized to complete the three major speaking assignments. These assignments represent the three most common types of speeches: narrative, expository and persuasive.   
Prerequisite: English VI   
Credits: 2

[Ethics](javascript:%20expandList('Ethics'))  
The course of Ethics aims to take the student through a comprehensive analysis of the mayor ethical issues in a globalized world. We presuppose an analytic philosophical methodology, utilizing the traditional tools of secular ethics in that tradition. The course will consider moral issues from both a theoretical standpoint (systematic and principle-based), and through case studies; thus we will try to be as sensitive as possible to the issues presented by the students, yet our analyses will recognize the importance and relevance of the ethical theories within the deontological and utilitarian ethics traditions. Students will develop skills in critical thinking, ethical and philosophical analysis, and verbal expression. They will be better able to recognize ethical issues arising in a variety of professional and social contexts and better able to recognize value conflict and potential ways of resolving such conflicts in a multicultural environment such as Peru.   
Credits: 4

[Argumentation & Debate](javascript:%20expandList('Argumentation'))  
This course is designed to introduce students to the principles, practices and concepts of argumentation and debate. This course is essentially a performance course with a large amount of class time devoted to public presentations, small group interaction, formal argument preparation, persuasion strategies and debate exercises.   
Credits: 4

**Visual & Design Arts**

[Applied Art History](javascript:%20expandList('A43'))  
This is a theoretical course. It is designed to foster the student to develop a comprehensive and analytical knowledge of art history. The course will explore the universal art historical references from the Middle Ages to the XIX century. The objective is to distinguish and understand the main characteristics of the relevant representations of each period relating and comparing the contributions of world art to the present artistic depictions.   
Prerequisite: none   
Credits: 2

[Photography I](javascript:%20expandList('A45'))  
This is theoretical/practical course of the 5th cycle/semester intended to enhance the students understanding and praxis of composition in photography and the potential of its use towards communicating an idea or feeling.   
Prerequisite: Research and Design   
Credits: 3

[Photography II](javascript:%20expandList('PhotographyII'))  
The second level of theoretical and practical photo production, this course will equip students to interpret photographic images on a formal level, and create technically correct digital images through the effective operation of the camera and digital tools in the lab.   
Prerequisite: none   
Credits: 4

[Architectural Processes](javascript:%20expandList('A21'))  
The course introduces the student to the evolution of architecture and urbanism through time. This evolution is understood as a process that is composed of complex factors such as society, economy, technology, politics and the environment. The student will develop knowledge in the history of architecture and urbanism; understand the challenges of each historical period and build a theoretical background that will act as a fundamental basis for undertaking architectural design. The course is divided into three main sections: a brief introduction, origins and development, modernization, growth, and globalization and a look at the future. Finally, a reflection is made about the Peruvian built constriction environment, within the context of a global panorama and the role of the architect and town planner to create friendly and sustainable places. Students can register for this course in the fifth semester.   
Prerequisite: Town Planning (Urbanism)   
Credits: 3

[Urbanism (Town Planning)](javascript:%20expandList('A22'))  
The course offers to introduce the student to the discipline of urbanism; it gives a broad overview of the structure and process of contemporary urbanism practice in the world and in Peru. The student will develop knowledge in major urban issues, getting involved in both the theoretical debates and practical challenges that urban designers are likely to encounter within different substantive subfields of urbanism practice; and in the discussion of problem solving techniques and strategies used by practicing urban designers and planners working in different contexts. Some key conceptual aspects of the course are the basis of urbanism, the structure and functions of the city, public spaces and place identity, urban density, sustainable urbanism, urban design tendencies and the cities of the future and the case of Peruvian cities, specifically Lima. Students can register for this course in the fourth semester.   
Prerequisite: none   
Credits: 3

**Psychology & Social Science**

[Introduction to the Social Sciences](javascript:%20expandList('A55'))  
This is an introductory course to the social sciences. It is designed to provide basic theoretical tools to examine the interaction between individuals and society. It introduces some key concepts to social sciences aiming at the promotion of deliberative and critical thinking of different aspects of society.   
Prerequisite: none   
Credits: 4

[Psychology Communication](javascript:%20expandList('A47'))  
Theoretical course based on social psychology, with the main emphasis on social communication manifestations. The course is oriented mainly toward the analysis of media, critical observation of media contents, and the different approaches that messages have, with a particular focus on the public as individuals and groups.   
Prerequisite: none   
Credits: 3

[Human Development](javascript:%20expandList('A54'))  
Human development is a course for students in their first semester. This course, combining theoretical and participation approaches, is aimed at promoting the development of general competencies, mainly the ones related to human development: fostering student?s self-knowledge, creating spaces for reflection and interaction with themselves and their social surroundings. Also, there is a specific focus on promoting personal strategies and ways of processing information that will be useful in the student?s future career. Issues such as the origin and essence of humans, self-knowledge, life-plan, proactivity, team work and moral responsibility will be studied   
Prerequisite: none   
Credits: 4

[Introduction to Psychotherapy](javascript:%20expandList('Psychotherapy'))  
This class introduces the student to the systematic study of psychological aid to different life difficulties and behavioral problems of people who request help. Theoretical and practical concepts and of Psychotherapy will be reviewed, evaluating its validity and reliability as well as its scope and limitations. The possible ethical implications will be also discussed. The most important contemporary psychotherapy approaches will be reviewed.  
Prerequisite: none   
Credits: 4

[Communications Psychology](javascript:%20expandList('CommunicationsPsychology'))  
Theoretical course based on social psychology with the main emphasis on media communication manifestations. The course is oriented mainly towards the analysis of mass media, critical observation of media contents, and the different approaches that messages have, with a particular focus on the public as individuals and groups.   
Credits: 4

**Engineering**

[Agro-industrial Processing I](javascript:%20expandList('A20'))  
This is a theoretical and practical course that consists of the study of the technologies that are used in the processing of agroindustrial products. An emphasis is placed on the use of cold, heat, drying and chemical compounds (acidification and reduction of water activity with sugar or salt) in the preservation of these products.   
Prerequisite: Microbiology   
Credits: 4

[Agri-Food Technologies II](javascript:%20expandList('AgriFoodTechnologiesII'))  
Theoretical-practical course that deals with the technologies used in food processing, regarding methods of extraction, standardization, irradiation, frying, extrusion, carbonation and fermentation. Also, this course is complemented with topics in water and solid waste treatment, and shelf life estimation of processed packed food.   
Credits: 4

[Information Technology Applied to Management](javascript:%20expandList('InformationTechnologyAppliedManagement'))  
The content of this course is fundamental, as it offers students from all majors the necessary skills for effective performance in the world of business. The course covers concepts related to information systems that use information technology tools, placing emphasis on real situations presented by instructors who share their professional experiences. The laboratory part of the course is geared towards advanced instruction on MS Excel spreadsheets and MS Project: pivot tables, data analysis and project management. Course work includes in-class assignments and the preparation, presentation and defense of these tasks, in which students apply all of the knowledge they have acquired.   
Credits: 3

[Systems Development II](javascript:%20expandList('SystemsDevelopmentII'))  
The course is theoretical - practical and covers concepts and techniques needed to design solutions in information systems. Rational Unified Process is studied for software development, especially in the flow design. The objective of the course is to study a number of design elements that will constitute the basis for the construction and coding of a new solution. The artifacts will be supported by CSE tools.   
Credits: 2

[Systems Workshop II](javascript:%20expandList('SystemsWorkshopII'))  
The course is practical and covers concepts and techniques needed to design solutions in information systems. Rational Unified Process (RUP) is applied for software development, especially in the flow design. The objective of the course is to apply enough design elements that will constitute the base for construction and coding of a solution. The artifacts of UML will be supported by CASE tools.   
Credits: 2

[Software Quality Management](javascript:%20expandList('SoftwareQualityManagement'))  
The purpose of this theory and practical course is for students to master the use of technologies applied to high quality software development projects in the business environment or society. In addition, the intention is for students to gain an appreciation of the importance of software engineering, quality and international standards that govern the discipline. Different topics related to software engineering will be covered, with emphasis on the use of streamlined methods for software development, as well as teamwork techniques and the most common roles.   
Credits: 2

[Engineering Technologies I](javascript:%20expandList('Engineering'))  
The course is theoretical - practical and focuses on developing the necessary skills to identify and analyze emerging technologies in order to consider their impact in the context of a specific industry, business scenario or the whole society. The concepts covered in the course will allow the students to consider the implications of emerging technologies, predict their impact and decide how to act upon them in any given context.   
Credits: 2

[Concrete Technology](javascript:%20expandList('ConcreteTechnology'))  
The course is both theoretical and practical and provides the participants with the knowledge to evaluate the quality of the materials used to design concrete mixes, as well as to have the necessary basis to develop in the other courses of the area. The course develops topics like: Concrete General Concepts.- Nature of Concrete Strength.- Aggregate Physical Characteristics.- Concrete Additives.- Main properties of fresh and hardened concrete.- Concrete Permeability.- Durability and strength of concrete.- Concrete mix design, conventional or high resistance.- Trial mix correction.- Quality control.- Statistical evaluation of the strength results.- Premix concrete plants.- Concrete mixing, pumping, and compacting equipment.   
Credits: 4

[Introduction to Computer Methods](javascript:%20expandList('IntroductiontoComputerMethods'))  
The course will introduce the student to several numerical tools, which will be implemented using the Matlab software. There will be several worked examples and case studies in order to illustrate the nuances of the methods and showing more realistically how the methods along with Matlab are applied for problem solving. The course is divided in 6 modules: Mathematical Modeling, Roots and Optimization, Linear Systems, Curve Fitting, Numerical Integration and Differentiation, Numerical Solution of Ordinary Differential Equations, and Mupad.   
Credits: 4

[Fluid Mechanics](javascript:%20expandList('FluidMechanics'))  
This course is based on a theoretical and practical guidance to develop skills in the solution of hydrostatic and dynamic fluid problems. The main topics include fluid properties, pressure and fluid statics (forces on flat areas and submerge curves), fluid in motion, conservation mass, momentum analysis, General equation of energy, dimensional analysis, flow in pipes, differential analysis, Navier-Stokes equation, surface resistance, and boundary layer.   
Credits: 4

[Introduction to Transportation Engineering](javascript:%20expandList('IntroductiontoTransportationEngineering'))  
The course provides a basic knowledge in transportation engineering, including the functions of planning, design, and operations. This knowledge base is designed to: 1) prepare a student for additional, more specialized courses in transportation engineering; and 2) prepare the student for solving real-world transportation related problems. The primary objective is to provide students with an ability to complete a variety of traffic engineering analysis and to improve skills in problem solving. An important secondary objective is to acquaint students with sources of information useful for understanding transportation situations.   
Credits: 4

[Highway Design](javascript:%20expandList('HighwayDesign'))  
This theoretical course is about geometric design of rural and urban roads. The course covers topics such as design criteria and controls, and elements of it related to distance, horizontal and vertical alignments, elements of level crossing, intersections, grade separations (overpasses and bypasses) and road interchanges. Computer application will be fundamental for the development of this course.   
Credits: 4