

HANDONG GLOBAL UNIVERSITY



ACADEMIC CATALOG

2019-2020



HANDONG GLOBAL UNIVERSITY

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SCHOOL OF MANAGEMENT AND ECONOMICS

▶ Introduction to Management (Spring & Fall Semester)

- The effective management of work of employees within organizations is the backbone of industrialized societies. This is an introductory core course to explore critical management skills involved in planning, organizing, controlling and leading an organization especially focused on startup or venture companies. Topics covered include business environment, business idea, business model, entrepreneurship, business management, human resources teamwork, funding and financial management, marketing and strategy, accounting, and management information system. The course aims to equip students with knowledge of how to build and manage a startup business and professional skills especially for a startup companies, and encourage practicing them as Christian business professionals in the future.

- The effective management of work of employees within organizations is the backbone of industrialized societies. This course explores the various knowledge domains related to management. It will focus on basic managerial functions such as, planning, organizing, leading, and controlling. Topics covered include the business environment, business ownership, entrepreneurship, business management, marketing, finance, accounting, MIS, and operations management.

▶ Microeconomic (Spring & Fall Semester)

- This course studies economic agents' rational choice - how they can optimize their object under given constraints. Topics cover the theory of demand and supply derived from the analysis of choices made by consumers and firms, the theory of market structure such as competition, monopoly, oligopoly and monopolistic competition. Throughout this course, mathematical analysis will be widely used.

- This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Then it introduces a framework for learning about consumer behavior and analyzing consumer decisions. We then turn our attention to firms and their decisions about optimal production, and the impact of different market structures on firms' behavior. We also study basic game-theoretic concepts and tools, and apply them to some of more advanced topics in microeconomics.

▶ Statistics for Economics and Management (Spring & Fall Semester)

- Probability and statistics are central to the data analysis and decision-making under uncertainty in economics and management. Moreover, statistical methods will be useful in business and marketplace. Therefore, this course will introduce students to important concepts and tools in statistics so that they may be able to conduct their own statistical analysis (no matter how primitive it would be) as well as to analyze and interpret statistical results that students will frequently see over their lives.

- There are three sections of Statistics for Management and Economics. This section will be more theoretical and mathematically demanding than other sections. But it will lay a good foundation for more advanced statistical analysis such as econometrics. Hence, this section will be particularly recommended to economics students, though helpful to non-economics students too.

▶ Mathematics for Economics (Spring & Fall Semester)

The purpose of this course is to understand basic concepts and properties in mathematical economics. The pre-requisite includes basic concepts in differentiation, logarithm, and the other basic mathematics which the high school curriculum in Korea is covering. In this course, I'll focus on providing the intuitions of concepts and properties. A lot of changes to practicing with problem sets would be given in each class. Basic optimization, linear algebra, differentiation, implicit theorems would be covered during the semester.

▶ Management Informational Systems (Spring Semester)

This course surveys the fundamental concepts of organizational and technical aspects of information systems and technologies. Topics such as management of information, information technology, information resources management, management support systems and systems development, will be discussed to provide the understanding of how information systems can help make better decisions, gain competitive advantage, take advantage of emerging technologies, and align information systems to general business functions.

▶ Marketing Management (Spring & Fall Semester)

- This course introduces you to marketing theories and perspectives essential to the success of both for-profit and not-for profit organizations. This course will use a combination of analytical and experiential methods to learn about the following topics: understanding consumers' needs and wants, designing and delivering value-added products, selecting target markets, product positioning and branding, and various marketing communication methods.

- Marketing is designed to serve our neighbors' needs and wants. It is a powerful tool to change the world positively, when used as the Bible says, "Do nothing from selfishness or empty conceit, but with humility of mind regard one another as more important than yourselves. Do not merely look out for your own personal interests, but also for the interests of others" (Philippians 2:3-4).

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▶ Principles of Accounting (Spring & Fall Semester)

- Accounting is the language of business much in the way that math is the language of physics. A solid understanding of accounting principles is essential who wants to understand modern business. This course will be extremely useful not just to people pursuing an accounting track, but also those who plan to become managers and even those interested in learning to invest in stocks wisely.

- This course is an introduction to the basic concepts and principles of financial accounting to enable students to be familiar with accounting terminology and methods so that they may utilize accounting information for decision making in business situations.

▶ Business IT Practice (Spring & Fall Semester)

- This class is to improve students' productivity skills with computers by practicing advanced topics in spreadsheet and database management software.

- Students will practice how to derive useful information from raw data, and will also practice how to make models and run simulations to make rational decisions, and finally will practice writing programs to tackle complex problems.

▶ Financial Management (Spring & Fall Semester)

- Financial Management studies the subjects related to financial decision making from the perspective of the corporate financial manager. Every decision made in business has financial implications. Therefore, it is necessary for all students who are involved in the field of management to study Financial Management.

- This course touches on all areas of finance, including corporate finance, financial markets, and investment. We will focus on decision-making in fund raising and operating. This course is recommended for sophomores with a major or minor in management.

▶ Organizational Behavior (Spring & Fall Semester)

Managers and business professionals make decisions, allocate resources, and direct the activities of others in order to achieve the goals of their organization. These actions can affect the behaviors and performance of others. Thus, to be effective as a manager or a business professional, one needs to understand the complexities of human behavior and interaction in the workplace. In this course, we study human behavior within an organizational context. At the individual level, we will consider personality, learning, decision making, and motivation. At the group level, we examine group processes, communication, leadership, power, politics, conflict, and negotiation. At the organization level, we examine organization structure and design, organization culture, and organization change.

▶ Financial & Monetary Economics (Spring Semester)

This course is an introduction to foundations of financial markets and financial institutions. The course will help students to understand why finance is needed for individual economic agents as well as for a whole economy. The course will also devote a considerable amount of time to explaining how financial markets work. In order to understand that, students will learn basic theories related to the financial markets. In addition, the course will deal with what roles financial institutions such as commercial banks and securities firms play in the financial markets. Students will be able to see creative responses of the financial institutions to the needs of borrowers or investors under a variety of economic conditions. Finally, the course will discuss why government and central bank play an increasingly important role in the current financial system.

▶ International Economics (Spring Semester)

In MEC 303 & GMP 405: International Economics, we will use the same fundamental methods of analysis as in other branches of economics, but we will encounter new and different concerns, because international trade, investment and foreign transactions occur between independent nations. Each nation has its own sovereignty and thus can pursue policies to better its interests, which are some rationales that make international economics distinctive from other principles. We will discuss important topics including foreign exchange rate, monetary transactions, open macroeconomic phenomena, gains from trade, pattern of trade, controversies in trade policy, international negotiations and efforts for freer trade.

▶ Labor Economics (Spring Semester)

This course applies economic theory and analytical tools to the problems and current issues of the labor market and labor institution. The topics covered include labor supply and demand analysis, determination of wage rates and employment levels, accumulation of human capital, sources of wage differences, firm compensation policy and performance incentives, social policy, and the economic impact of labor unions. Basically this course is concerned with the integration of faith with learning in the field of economics to embody the Words "All truth is God's truth."

▶ Theory of Games and Information (Spring Semester)

This course is an introduction to game theory. Game theory is the study of multi-person decision problem. Such problems arise frequently in various situations such as economics, political science, and law. Therefore, the course will deal with a variety of game situations which we can look at and focus on how useful the theory is when we strategically analyze such situations. In addition, game theory is based on logical thinking. So if students are able to think logically and have analytical skills, they will not have difficulty in understanding the class even though they have no deep knowledge of economics. Furthermore, students will be able to improve their logical thinking skills through this course.

▶ Geography and Urban Economics (Spring Semester)

The course provides a basic understanding of how urban agglomeration can be interpreted in the perspectives of economics. The main contents consist of three parts. 1. Economic analysis for urban agglomeration: why and how the suppliers and the demanders are locational agglomerated in a modern economy. 2. Economic analysis for urban structure: how the structure, size, and shape of cities are related to the optimal location selection problem of economic agents. 3. Introduction of the Biblical viewpoint and related studies throughout the geographical-economic problems. We would discuss over Henry George's ideas and the criticism and the application. This course provides not only lectures but includes team-discussion about 10 ~ 20 minutes. The organization of team would be according to the size of the course.

▶ Quantitative Analysis for Management (Spring Semester)

In this course, we study various optimization models. The following topics will be covered:

- Linear programming
- Network models
- integer programming
- Project scheduling
- Waiting line models,
- Inventory models

▶ Production and Operations Management (Spring & Fall Semester)

In a competitive global environment, operations management involves the integration of numerous activities and processes to produce products and services. In this course, we consider key performance measures of operations as well as important concepts for improving the performance of operations along these dimensions. The goal of this course is understanding of the role that operations management plays in business processes.

▶ Cost & Management Accounting (Spring & Fall Semester)

- Unlike financial accounting prepared for external users, managerial accounting is designed to help decision makers within the firm. This course will focus on product costing and cost analyses, cost information relevant for decision making, cost analysis for pricing decisions, and performance evaluation of business units and incentive scheme.
- Unlike financial accounting prepared for external users, managerial accounting is designed to help decision makers within the firm. This course will focus on product costing and cost analyses, cost information relevant for decision making, cost analysis for pricing decisions, and performance evaluation of business units and incentive scheme. This course uses English for lectures, text book, examinations and major communications.

▶ Intermediate Accounting 1 (Spring Semester)

This course covers intermediate level financial accounting matters including Financial reporting and accounting standards, Conceptual framework for financial reporting, Accounting information systems, Financial statements, Time value of money, Cash and receivables, Valuation of inventories, Property, plant and equipment and its depreciation, Intangible assets, Current and non-current liabilities under International Financial Reporting Standards (IFRS). This course is intended to provide in-depth accounting concepts, methods and uses of financial accounting in order for students to prepare, interpret and utilize major financial statements and its contained information for key business and investment decision making. This course uses Korean for lectures but uses English for text books and examination.

▶ Human Resource Management (Spring Semester)

This course will provide you with a systematic understanding of HRM practices. HR topics (e.g., recruitment, selecting, training & development, performance management systems, compensation systems, etc.) will be addressed from a strategic perspective. Students will have opportunities to intensively practice and explore HRM issues while completing team project and team-led learning activities.

▶ International Business (Spring Semester)

This course introduces students to the world of international business and management by studying historical and cultural influences; government, and business policies; and organizational structures and strategies that are important to understanding our global economy. Students also learn about trade relations, international finance and legal and labor agreements. Towards the end of the course, we will look at the current challenges brought about by technology, world tensions and terrorism, as well as organizational requirements today in data collection, automated production systems, marketing and promotion, and career planning.

SCHOOL OF GLOBAL ENTREPREURSHIP AND ICT

▶ 3D Digital Content Production (Spring Semester)

This course is designed for students to learn both practical and theoretical aspects of the pipeline to produce 3D digital contents based on computer graphics (CG). The main software used in the class is Autodesk Maya. Using the software, the students will be familiarized with various practical tools for CG. They will also learn how to use optical motion capture cameras to produce example-based character animation and have fundamental understanding for modeling, animating characters, and rendering throughout the class.

▶ Big-Data Analysis (Spring Semester)

Welcome to the world of "Big Data". Data science is to derive knowledge from "Big Data", efficiently and intelligently. For the next 16 weeks, students will learn about data science and practice a general data analysis pipeline of data acquisition, preparation, analysis, visualization and presentation. Students will also perform a data analytics project of their interest.

▶ Business, Culture and Spirituality (Spring Semester)

Background: to discern various modern culture and spirituality in business world. Contents: to examine the relationship between Calvinism and the Dutch entrepreneurship. Necessity: to offer a Christian view of entrepreneurship and to put it into practice in a concrete life. Method: Lecture, team presentation and discussion.

▶ Data Science (Spring Semester)

Even if you've heard a lot about big data analytics, but you might feel vague or don't have basic ICT skills and programming experience. This course teaches the process of data analysis step by step. Learn, one of the most used tools for data analysts, how to get and understand data using R, study how to operate and analyze data. Students learn the basics of creating models that can predict the current situation and the future from historical data. This will provide students the foundational skills to analyze data.

▶ Entrepreneurial Law (Spring Semester)

This course teaches students business ethics that entrepreneurs should know in order for them to use their entrepreneurship mindset for good cause for public benefit for the society as a good steward who serves God through doing a business. As the continuation of the SIT213 course, that starts with the question as to why some countries are prosper and some are poor chronically, this course explores the environment where entrepreneurs can function in terms of ethics and laws and discusses what each law contributes for the cause and how, in the form of lectures and storytelling as well as group projects and research and case studies by the students. This is the only law course in the triad tracks of the Global Entrepreneurship and ICT (GEI) that consists of technology, business and law. It teaches the students a wide range of legal subjects related with ethics, entrepreneurship, and business laws including incorporating and running a start-up business in wide swath as the continuation of the "Introduction to Global Entrepreneurship (IGE, SIT213)" course. This course is to teach entrepreneurial students' knowledge in basic corporate laws necessary for them to start a new business and operate it. It also teaches students basic terminologies in corporate laws that are essential not only for them to start a enterprise but also for them to work in a pre-established company in a management position. It is to make the students feel at ease

in dealing with legal matters and talking to legal counsel while founding and running a new business. For prospective entrepreneurs who want to start a new business this course will help the students become interested in the corporate laws and basic mechanics and terminologies that are essential for incorporation of a new company for starting up a new start-up business and operating it in a bird eye view. However, the knowledge in laws are equally necessary for those who want to start a new business and those who want to join a pre-established corporation. For those who want to understand the entrepreneurship mindset better, this course will offer the students a chance to experience entrepreneurship from a different direction, through the aspect of business ethics and necessary laws.

▶ Human Computer Interaction (Spring Semester)

This course will give understandings of the human, computer, and those interactions and provides engineering practices about planning, designing, analysis, and evaluation to implementing an HCI system. This course consists of 32 classes. Among those classes, 8 classes (4 weeks) will be taught by online lectures (75 min x 8 times = 600 min), another 24 classes (12 weeks) will be offered in the classroom. An extended syllabus is shared at https://docs.google.com/document/d/1aErjLM7GYZ8JJVtCbr4ruZk-NEyu5Wlujvh40QG_1M/ (in preparation).

▶ ICT Application Development (Spring Semester)

In our daily life, we use various applications based on Information and Communication Technology (ICT). We use a personal computer and mobile devices to process data, earn information, control other devices. As a user of the application, we prefer an application which has a beautiful user interface, performs quick response, and well-organized information structure. A high programming skill does not guarantee the success of an application. The primary objective of this lecture is to learn how to build useful applications that the user may love. In this course, students will develop various kinds of applications on various platforms, such as Windows, Mac OSX, iOS, and Androids. Unfortunately, to do so, the student should learn an individual programming language to deploy their applications. To overcome the problem, students will develop an application on the particular development environment which can develop a cross-platform application. Which means that if a student develops an application using a particular programming language, the development platform generates an application on the various platform automatically.

▶ Introduction to Global Entrepreneurship (Spring & Fall Semester)

This is the first course one should take if one wants to learn entrepreneurship as the major or minor, or learn as a back-ground information. Even if one does not start a business, entrepreneurship mindset is the most important asset that helps one to attain his/her life goal. So, this class is not just about starting a new company although the basic knowledge and the mechanics of starting a new company is learned while doing the group project. Entrepreneurship experience can be your life-changing experience for you as many students testified and as I experienced myself in my early years. This course is mostly based on the instructor's own personal experience while working as dept. head at Bell Labs and starting 3 new start-up companies in the US in his life that is not covered in any text books available. It is recommended that students take this course as early as one can since the mindset one would acquire in this course will help the students greatly while taking other courses and learn during his/her undergraduate life. This course is a compulsory and the first course in the entrepreneurship major (GE track) that a GE-major student should take. It is also a background course that students majoring in other majors who are interested in entrepreneurship. The course is intended to show the students the overall Global Entrepreneurship (GE) track curriculum in a bird's eye view to enable the students to navigate and select and take necessary courses later throughout the GE program among the triad of the tracks offered in GE that consist of business, law, and technology disciplines, and integrate the subjects learned in-depth from the three tracks into an integrated knowledge without a wall among them for the inter-disciplinary education. The main purpose of the course is introducing the students to the concept of entrepreneurship and its mindset,

and allow them a chance to experience the entrepreneurship as well as the basics of starting a new business. This course is categorized as the basic foundation course applicable for all tracks for the School of Global Entrepreneurship and ICT (GEI). The main purpose is to let the students learn the true meanings of the entrepreneurship mindset and experience it and change to an entrepreneur. It also shows students how to channel the spirit to develop an idea into a gainful business and found and run a company for profit in a comprehensive view based on integrated knowledge in business, law, and technology disciplines. The class is conducted fully in English and helps students learn English in a real classroom environment in the US.

► **Technology Commercialization (Spring Semester)**

New technologies such as artificial intelligence, block chain, and virtual reality are emerging simultaneously and disrupt the industries. In the era of technological revolution, competitive advantage is given to start-ups that create differentiated products / services by applying these new technologies. In this course, students examine trends in key technologies and learn how to adopt new technologies and develop start-up items based on technologies.

SCHOOL OF COMMUNICATION ARTS AND SCIENCE

▶ Communication Theories (Spring Semester)

This course is designed to study basic theories in the field of media and communication studies, and to apply them to social phenomena. This course is positively necessary to all the sophomore students before taking further courses on media, culture and communication. Various communication theories from inter-personal communication to mass communication theory will be taught. Furthermore, later in the semester, students will learn to apply those theories to the actual society we live in.

▶ Mass Media and Society (Spring & Fall Semester)

- **Convergence & Insight** - Students will be able to deal with the problems arose in media environment through the humanistic insight and socio-scientific strictness, and logical natural science.

Critical Analysis - Students will be able to critically analyze the infrastructures which are required to produce media content.

Communication Proficiency - Students will be able to work together in a various media environment.

- The influence of the mass media in modern society, the common and differences of the media genre, the cultural and social and institutional influences of the mass media, what and how to change.

▶ Dramatic Form and Structure (Spring Semester)

Dramatic form describes the recognizable features or characteristics of a particular genre and the method, conventions and styles that are used to communicate meaning to an audience. Dramatic structure is a construction of dramatic works using various dramatic elements and techniques based upon Aristotelian principles. From the ancient Greek plays to contemporary drama, you are expected to explore and analyze diverse forms and structures of dramatic works. A successful study of the materials throughout the semester will enable you to launch upon more advanced study of dramatic criticism and creation.

▶ Introduction to Documentary (Spring Semester)

First of all, students will study the origin and general history of documentary film, and its characteristics as a medium. And then, we will explore not only 'non-fiction genre' but also 'factual program' in current era with discussion, planning and practice practices on a team basis.

▶ Media & Cultural Diversity (Spring Semester)

- 1) As globalization rapidly progresses, population mobility is also rapidly increasing. Although the global media culture has been spreading, the media industry and contents in Korea are still tied to nationalism and nationalist discourse, and the flow of change is slow. The Korean National Statistical Office estimates that by 2020, about 5% of the population living in Korea will be filled with non-nationals, that means Korea will become a multi-cultural society.
- 2) Through this lecture, we will analyze the closed and conservative nationalistic emotions that are prevalent in Korean society and the social issues caused by them through the media articles and discuss the perspective of the cultural diversity that the media should have in the global society in the future.
- 3) Especially, this lecture wants to improve the critical viewpoint that can analyze social issues from various viewpoints

by reading media articles in diverse fields such as politics, society, culture, economy and sports.

▶ Cinema History (Spring Semester)

In the early part of this course, we will study the birth of the cinema and its evolution by mobility and close-up. Thereafter, following the path of Korean film history, we will try to understand how the aesthetics of Korean cinema has been developed. This course would be a new aesthetic approach to the Korean film history rather than an industrial or a social approach.

SCHOOL OF COMPUTER SCIENCE AND ELECTRICAL ENGINEERING

▶ Open Source Software (Spring Semester)

This course aims to learn open source software trends and various technical issues that provide a variety of underlying technologies for software development; and to develop the abilities to utilize them in implementing a new software. To achieve these, we use Linux, the most widely used open source operating system, build and configure a server that provides various online services. Through hands-on experiences, we will acquire an understanding of the Linux ecosystem, and practice development and collaboration using public libraries and frameworks.

▶ Circuit Theory 1 (Spring Semester)

This is one of the basic courses in the electronic engineering, and aims to set up the basis of electric circuits. It provides an overview and basics of practical use of selected methods for the description, analysis and design of linear electric circuits. It also provides detailed instructions and information on the safety of work with electric devices. This course is prerequisite to Circuit theory 2, Electronic circuits and etc. The contents of this course are as follows:

Circuits with Resistance only

- Ohm's Law, Kirchhoff's Voltage & Current Laws
- Analysis Techniques I: Nodal and Loop Analysis Techniques
- Operational Amplifiers
- Analysis Techniques II: Superposition, Thevenin and Norton Theorems

Circuits with Dynamic Elements

- Capacitance & Inductance, RC Cop-amps
- First-order Transient and Second-order Transient Circuits
- AC Circuits
- Sinusoids, Complex functions, Phasors
- Impedance and Admittance
- Analysis techniques

▶ Data Structures (Spring Semester)

In this course, basic concept of data structures and the algorithms to manipulate them are provided. The students are also provided with many chances to practice C++ programming skill.

▶ Java Programming (Spring Semester)

This course will cover the basic grammar of Java and the concept of object oriented programming (OOP). Students should have a computer and programming environment for Java programming but any operating system (OS) is OK. Current schedule is tentative and may be changed while a semester is going on based on students' learning experience

▶ Logic Design (Spring Semester)

This is the fundamental course that is required to understand modern digital hardware design. This course is a core foundation course for hardware design and it is the prerequisite for computer architecture and organization, digital system design, embedded processor application, microprocessor design, and integrated circuit design courses in upper

levels. It covers Boolean Algebra, Primitive Gates, Combinational Circuit Design, Sequential Circuit Design, Finite State Machine. Combinational Logic Optimization techniques like Karnaugh Map approach is covered. Some timing issues such as setup time, hold time, and propagation delay will be addressed in the course. In addition, modern digital logic implementation platform such as CAD tools and programmable logic devices will be introduced to students. Students are required to demonstrate the ability to design and analyze simple logic circuits at the end of semester.

▶ Operating Systems (Spring Semester)

Introduction to the core concepts, principles, and related techniques that are applicable to various operating systems. The emphasis will be given to the ones about process and storage management. Students will do a few programming assignments on UNIX/Linux environment. The programming assignments would require advanced features of OS such as multi-threaded programming, shared memory, and synchronization primitives.

▶ Algorithms Analysis (Spring Semester)

Algorithm is a strategy for solving a problem with the assistance of a computer. To say that a problem is algorithmically solvable means, informally, that a computer program can be written that will produce the correct answer for any input if we let it run long enough and allow it as much as storage space as it needs. In this course, we will study various algorithms by analyzing them and discuss various algorithm design techniques. C will be used to develop and implement programming assignment.

▶ Object-Oriented Design Pattern(Spring Semester)

Students learn the essential concepts about the object-oriented paradigm with Java programming language (and C++ language for some design pattern examples) and design patterns for making reusable and maintainable software system. Students improve Java proficiency up to immediate level based on design patterns.

▶ Database System (Spring Semester)

* This course covers three topics in sequence. The first topic is the fundamentals of the relational database systems. Regarding the first topic, the class will discuss why we need database systems to date and how can we construct/represent database systems as Relations. Students will use different languages to design and analyze relational databases. The second topic is SQL and Relational DBMS. This part has a strong emphasis on equipping students with knowledge/skill on relational database system to date. Students will be asked to use the core part of SQL with real-world RDBMS (e.g., MySQL) fluently. The last part of this course will be on recent topics in database such as NoSQL, real-time database, Big data system and related topics.

* Group projects will be a major part of this class. A group of 4-5 students will design a database application across the semester. This project will be very helpful to understand both practice and theory of database systems.

▶ Computer Graphics (Spring Semester)

Topics include computer graphics hardware architecture, graphics coordinate conversion, vectors and raster, textual mapping, ray tracing, surface modeling, shading, hidden line removal, and 2D and 3D graphics, OpenGL. How to make your Toy Story?

▶ **Compiler Theory (Spring Semester)**

Students learn the introductory level of automata theory, and the principles and implementations of front-end compiler techniques which deal with scanner, parser, and semantic analyzer. Emphasis will be given to the theoretical understanding and implementation of scanner and a variety of parsers -- LL(1), LR(0), SLR(1), LR(1), and LALR(1). Most projects are about implementing front-end compiler manually. Some projects will be given for exercising automatic scanner and parser generating tools such as Lex and Yacc, which are flex and bison.

▶ **Semiconductor Physics (Spring Semester)**

This course is an introduction to semiconductor devices for undergraduate electrical engineers. Two basic purposes are (1) to provide students with a sound understanding of existing devices, so that their studies of electronic circuits and systems will be meaningful; and (2) to develop the basic tools with which they can later learn about newly developed devices and applications.

▶ **Principles of Communication (Spring Semester)**

This subject aims to learn the principles of communication systems and their analysis methods, mainly focusing on analog communication systems. The expression and analysis of signals, the transmission of signals, the analog modulation method such as AM and FM, and the basic principles of digital transmission are learned, and the digital modulation method is briefly introduced.

▶ **Software Engineering (Spring Semester)**

This course introduces students to the challenges and issues in software developments and various software engineering methodologies that have been proposed as scientific solutions to the problems. This course will cover key topics in software engineering including software process, requirements, and maintenance. In addition, this course has a high emphasis on understanding and practicing basic tools for engineering software.

Student duties:

- Active participation
- Exams
- Group projects
- Group tasks: Pick one lecture topic, survey it, and present in the class.
- HWs

SCHOOL OF CONTENTS CONVERGENCE DESIGN

▶ Computer Graphic Design 1 (Spring Semester)

This class is to learn Photoshop tools. The purpose of this class is to help students to learn and get familiar using Photoshop tools through various examples and exercises. Furthermore, students can express their ideas freely using tools.

▶ Fundamentals of Visual Communication Design (Spring Semester)

This course aims for students' basic understandings in Visual Communication Design; this course will cover from basic knowledge of Visual Communication Design to deeper understandings in how to create creative designs (building creative system). This course is for students to explore creative processes.

▶ Presentation Technique 1 (Spring Semester)

This course has been developed to help students practice basic drawing skills for effective Design Presentation. Through the lectures, students will learn various ways to realize their ideas and how to make various forms. There will be ample time to practice what students have learned, and many tests to check how they have improved. By the end of the course, most of the students will have no problem to draw and shade various 3 dimensional objects.

▶ Typography Design 1 (Spring Semester)

This course will examine basic typography as a compositional tool; the architecture of type from the single letterform to entire page layout. Every week the lecture and workshop will be held based on elements of typeface(alphabet) and typography. There will be weekly assignments, team workshop, and a final project for which students are responsible.

▶ Color Theory and Industrial Color (Spring Semester)

Learning and understanding the color and practical use of color.

SCHOOL OF COUNSELING PSYCHOLOGY AND SOCIAL WELFARE

▶ Children & Adolescents Counseling (Spring Semester)

Child and adolescent psychological problems and disorders have interested mental health professionals for some time; however, it is only in recent years that this interest has reached a larger audience. In this course, we will learn what abnormal child or adolescent behaviors are, how we distinguish between normal or abnormal behavior, and how we can be certain that a behavior is not part of normal development among child and adolescents.

▶ Child Welfare (Spring & Fall Semester)

This course is designed to enable students to build upon their knowledge of social policy and child welfare services and apply the knowledge to the needs of children and their families. This course provides an introduction to the field of child welfare, focusing on social work practice to meet various needs of children and their families. Students have the opportunity to discuss and debate the issues in the lens of CRC (Convention on the Rights of Child). This is an English-mediated course and the instructor would apply flipped-learning methods. Classes will consist of lecture, discussion, activities/exercises, readings, video segments, and presentations by students.

▶ Data Analysis for Social Welfare (Spring Semester)

Since the evidence-based practice is a key principle in social welfare practice, the knowledge and skills related to statistics and research is important to become a competent social welfare practitioner. For this, this course covers from understanding the basic concepts of statistics to writing statistical analysis result. Thus, students will enhance their capacity related to not only understanding academic papers, but also writing papers.

▶ Family Counseling (Spring Semester)

This course provides an overview of family counseling (a.k.a. marriage and family therapy; MFT). This course will review the history of family therapy development and the major leaders in the MFT history. Core and unique concepts and terms, as well as traditional and modern theoretical models in MFT will be taught in this course.

▶ Introduction to Psychology (Spring & Fall Semester)

- Psychology is a multifaceted field and is primarily concerned with the scientific study of human (and animal) behavior and mental processes. In this course we will survey the various fields of psychology (e.g., learning, memory, psychopathology, treatment, etc.) as well as the methods, practice, research, and theories of psychology. Both application and empirical findings will be emphasized throughout the course.

- Psychology is the scientific study of human behavior and mental processes. We'll study a range of topics (e.g., memory, pain, emotion, development, hunger, mental disorders, therapy) as well as the methods and theories of psychology. We will emphasize a biblical perspective on being human (BPSS approach) and compare that to major psychological

▶ **Personality Psychology (Spring Semester)**

This course is designed for undergraduate students as an introductory course in personality theories. Personality psychology is an area of psychology, which seeks to understand human nature, struggle, suffering, change, and growth. This course overviews major theorists, theories, and practices of various personality theories. This foundational course will prepare students for counseling practice and provide a basis for further studies in the area of counseling psychology.

▶ **Psychology of Learning (Spring Semester)**

This course introduces students to investigations of learning and behavior in human and nonhuman animals, including fundamental principles and findings of classical, instrumental, cognitive, and social learning. Learning investigations, theories and their historical antecedents will be covered. We will also discuss the foundations of learning research, contemporary advances in humans learning and every day applications for learning perspectives. Emphasis will be given to the development of ideas and potential applications in a variety of fields of psychology.

▶ **Program Development and Evaluation for Social Welfare (Spring Semester)**

This course is designed to provide a knowledge base of the key concepts of the Logic Model, need assessment, program evaluation, and program performance in various social service fields. In this course a Logic Model will be used as a powerful tool for program planning through evaluation.

▶ **Psychological Statistics (Spring Semester)**

In this course you should gain the following: 1. The ability to understand and explain to others the statistical analyses in reports of psychological research. 2. A preparation for more advanced courses in statistical methods. 3. The ability to identify the appropriate statistical procedure for many basic research situations and to carry out the necessary computations. 4. Further development of your quantitative and analytic thinking skills.

▶ **Social Problems (Spring Semester)**

This course covers theoretical approaches to social problems and various social problems in the world, particularly South Korea. We will learn about several problems such as global issues, inequality, urban problems, institutional problems, and deviant behaviors. In addition, we will discuss potential solutions for the social problems.

▶ **Social Welfare Policy (Spring Semester)**

This course is designed to enable students to increase their understanding of social welfare policy and to analyze social welfare policy in Korea. An analytic framework will be presented to assist students in assessing social welfare policies. Students will analyze existing social welfare policies and programs or propose new social welfare policies and programs for the team project.

▶ **Social Welfare Program Development and Evaluation (Spring Semester)**

This course is designed to provide a knowledge base of the key concepts of the Logic Model, need assessment, program evaluation, and program performance in various social service fields. In this course a Logic Model will be used as a

powerful tool for program planning through evaluation.

▶ **Statistics in Social Welfare (Spring Semester)**

Since the evidence-based practice is a key principle in social welfare practice, the knowledge and skills related to statistics and research is important to become a competent social welfare practitioner. For this, this course covers from understanding the basic concepts of statistics to writing statistical analysis result. Thus, students will enhance their capacity related to not only understanding academic papers, but also writing papers.

SCHOOL OF INTERNATIONAL STUDIES, LANGUAGES AND LITERATURE

▶ History of International Relations (Spring Semester)

Of all the ways that political communities interact, perhaps the most important is war. Indeed, Otto von Bismarck, a statesman of extraordinary ability, even described politics as “war through other means.” And yet diplomacy often entails minimizing or avoiding war. Thus Winston Churchill, another extraordinary statesman, quipped: “To jaw-jaw is always better than to war-war.” This class examines the two primary modes of international relations (war and diplomacy) by studying ancient and contemporary conflicts along with a major text in diplomacy. The course is divided into three sections. The first brief section will examine the events leading up to the Peloponnesian War. The second section will examine the specific practices of diplomacy as provided in a leading text used by many ministries of foreign affairs. The third section will examine one particular account of 20th century cold-war diplomacy building on our work in the previous two sections. The course examines the history and practices of international relations, particularly as they are practiced by diplomats in service to city-states, and nation-states.

▶ Introduction to Linguistics (Spring Semester)

Linguistics has made important contributions to many academic fields such as philosophy, education, sociology, psychology, law, medicine and communication. This course is designed to introduce basic linguistic concepts and contents to students without prior knowledge of linguistics, enabling them to appreciate the structure and meaning of the human language and to gain insight and basic understanding of language issues and debates.

▶ Introduction to TESOL (Spring Semester)

This course offers a survey of major areas in English language teaching. Students will explore models and basic principles of language acquisition and investigate various learning strategies and styles, as well as affective and sociocultural variables relevant to language teaching and learning.

▶ On Korean Politics (Spring Semester)

This course examines important issues and debates related to both of North and South Korean politics. This course is divided into two parts. In first part, it focuses on the South Korean politics by introducing its basic features such as political system and culture and then it deals important topics for South Korea including democratization and industrialization. Second part of course covers North Korean politics beginning with its political system, ideology, and economy. It also discusses the essential issues for North Korea such as power transition and regime's durability. Finally, the course elaborates the future of the Korean peninsula. Since this is an introductory course, students do not need to have prior knowledge of Korean politics. This course begins with the introduction of basic features of both North and South Korean politics.

▶ Philosophical Foundations of Politics (Spring Semester)

In this class we will examine the connections among political structures, fundamental perspectives, and civic participation. Political structures include things like cities, empires, and nation-states as well as types of regimes (democracies, aristocracies, monarchies). By “fundamental perspective” I mean to get at things like worldviews or religious beliefs that address such basic questions as who am I?, what is wrong with the world?, and how can we change the world? The

groups of people provide to these basic questions inform the breadth and modes of political participation. We begin with an examination of beliefs among the ancient near east, particularly the Egyptians, Babylonians and Greeks. We will then look at the Hebrews and Christian alternative accounts of political structure and participation. Finally, we will examine the emerging model that usually goes by the name "modernity." This final account rejects much of the Christian set of fundamental beliefs and hence recommends alternative political structures and practices.

► Senior Seminar (Spring & Fall Semester)

- Studying US' grand strategy and actions on East Asia-China and Korea peninsula Studying China' grand strategy and actions Studying hegemonic competition between US and China in East Asia Studying North Korea issue and stances of related states on it Studying Korea's strategic options in the dynamics of EA.

- International Development has gone through several phases emphasizing such things as trade, direct foreign aid, colonialism, culture, education, the environment, and so on. What is a Christian to make of this history and the many current debates on international development? Is there anything that Christians bring to the table? Through discussion and interaction, this class will focus on three different approaches to international development, starting with an extensive contrast between (1) direct foreign aid and (2) market-based approaches. From there we will discuss the need to develop (3) legal institutions and then close with an explicitly Christian approach that emphasizes (4) local development strategies. NOTE: The discussion format of the course may be new and unfamiliar to some students ;however, learning how to lead and participate in discussion is part of what we will learn during this course.

► Syntactic Analysis of Modern English (Spring & Fall Semester)

Language use involves an intricate system of largely subconscious grammatical knowledge. Nowhere is this more obvious than in the study of how words are combined to produce sentences. The purpose of this course is to provide an outline of English sentence structure from the viewpoint of a current linguistic theory. As we consider the system of rules and categories that underlies sentence formation in English, students will be enabled to view human linguistic system from a Christian perspective and to engage actively in the issues of foreign language learning and teaching.

► Themes in Fiction (Spring Semester)

This course is designed to explore elements of fiction, and examine how novels affect our lives on the basis of such themes as love, death, sin, freedom, salvation, and etc. Students will read three novels written by Khaled Hosseini, Bernard Malamud, and Virginia Woolf respectively, and one novella written by Tillie Olsen. The course will focus on literary interpretation in general, primarily taking a thematic approach.

► Themes in Poetry (Spring Semester)

This course introduces the students who love literature, poetry in particular, to the body of major British and American poetry (80 works), focusing on the themes, techniques, styles, terms, and movements. The poets discussed range from Renaissance poets like William Shakespeare (1564-1616) to the contemporary poets such as A. E. Stallings (1969-present). Diverse critical theories will be applied, such as historical, biographical, gender and feminist, Postmodernist approaches as well as Christian perspectives. Students are encouraged to participate in class discussions. This course also requires the student to write a critical essay about one or two poems and to write a creative or parodied poem.

▶ The Structure of Modern English: Sound Pattern (Spring Semester)

When one learns a language, one learns which speech sounds occur in the language and how they pattern according to regular rules. The phonology of a language is the system and pattern of the speech sounds. Accordingly, the goal of this course is not only to develop precise transcription systems (phonetic symbols) but also to discover principles that determine how sounds pattern in a language, and furthermore to explain how sound systems are acquired and represented in the mind. We will attempt to make explicit statements about the sound patterns of individual languages in order to discover something about the linguistic knowledge that people must have in order to use these patterns.

▶ US Foreign Policies (Spring Semester)

This course examines the field of United States Foreign Policy(hereafter USFP) with particular attention to the following three main areas

- 1) US presidents and their foreign policy doctrines in terms of historical context.
- 2) Determinants and processes of USFP decision making.
- 3) Case studies of USFP.

SCHOOL OF LIFE SCIENCE

▶ Bio Data Analytics (Spring & Fall Semester)

Life sciences are being developed with medical and engineering multidisciplinary systems, and the need for high-capacity data interpretation is emerging. Students will learn the basics of statistical methods and computational algorithms for the interpretation of data in the field of bioscience/engineering, application of sequencing, new drug development, artificial intelligence diagnostic methods, and techniques (statistics, mechanical learning, network analysis, chemical analysis). As a life science scientist (biologist, doctor, pharmacist), the students can understand the latest data interpretation techniques required and obtain the necessary skills and knowledge as a life science data scientist. In addition, using the data provided in the class or collected data, they propose their own application in the field of life sciences, such as diagnosis, new drug discovery, and customized healthcare, and carry out the project.

▶ Genetics (Spring Semester)

This course will enable us to understand the general concepts and terminology of heredity. This subject is available to those who take courses in general biology. Through this course, we understand the terms and general concepts of genetics. This lectures on the overall knowledge of genetics, not only on Mendel's genetic code, but also on concept, all the way to Quantitative Genetics and population genetics. In addition, we will learn about the use of genetics, which has recently been applied throughout society.

▶ Immunology (Spring Semester)

The immune system is an essential factor for survival. Maintaining the balance is essential in immune response through the regulation of the immune system. In the immunology course, we discuss the characteristics of immune cells and the mechanisms of immune responses and regulation. In addition, the course covers the principle of vaccine development and the interactions between the immune system and microbiome. Immunology is a science of multidisciplinary, which requires the background knowledge of cell and molecular biology, biochemistry, microbiology, and physiology. Therefore, it is strongly recommended that senior students with the related background take this immunology course.

▶ Molecular Biology 2 (Spring Semester)

This course aims to develop the ability to learn the areas of interest by learning the principles of various fields of research and experiments in molecular biology. Part of what was introduced in the course of Molecular Biology 1 is to deepen some of them, and introduce experimental techniques and genetic engineering related to molecular biology.

▶ Physiology (Spring Semester)

This course deals with the topic of how cells, tissues and organs coordinate, regulate and sustain life in the physiological process of the human body. The structure of cells and tissues, the nervous system, the endocrine system, muscles, heart, respiratory organs and reproductive organs are introduced in detail. This course is open to anyone who has completed general biology, but the basic knowledge of biochemistry will be helpful for understanding this course. Students will be able to understand various kinds of biological phenomenon through discussion based courses based on scientific and logic theory, and will be able to deal with different kinds of problems related to the treatment and prevention of the prevailing diseases in the biological science field. Also, students will be able to transfer scientific knowledge on the basis

of scientific logic; observation-hypothesis-proof and will be able to share opinions or ideas regarding scientific phenomenon that could resolve different problems.

▶ Seminar (Spring Semester)

The purpose of this class is understanding current issue of life science and developing presentation and discussion skill. Students will be asked to choose a research paper to prepare presentation. Two or three students will be a team and shall provide at least one presentation during the semester. Students will evaluate each other's presentations. It is important to understand that purpose of the presentation relines not only delivering the correct information, but also others.

▶ Systems Biology (Spring Semester)

All living creatures like us are remarkable, complicated systems. Systems biology is an interdisciplinary field of physics, mathematics, computer science and biology. It explores the underlying principles of biological processes and helps us to better understand the phenomenon of life at systems level. Systems biology advances the arrival of new era that makes it possible to control and manipulate biological systems and to even design artificial biological systems. In this class, we will learn about the systems biology view of various biological phenomenon and its analytical methods. In addition, we will learn about the application of systems biology to medicine and its impact on ethical and social issues.

SCHOOL OF LAW

▶ Constitutional Democracy in Comparative Perspective (Spring Semester)

Course will review "How should we then live? : The Rise and decline of Western thought and culture" by Francis A Schaeffer. The course is designed to build a legal mind in western and comparative context. The course intends to develop intellectual capacity to address today's challenges and issues in context of biblical perspective.

▶ Intellectual Property Law (Spring Semester)

- Introduction to intellectual property law
- Familiarization with basic concepts and application of copyright, trademark, and patent law
- Case reading and analysis
- Discussion on current issues regarding IP laws and law and technologies in general

▶ International Economic Law (Spring Semester)

In this course, we will explore the laws, policies and institutions that guide and govern trade among nations. In particular, we will focus much of our attention on how institutions like the International Monetary Fund (IMF), the World Bank, and the World Trade Organization (WTO), has influenced international trade and the world economy.

▶ Justice: Readings in Moral & Political Philosophy (Spring Semester)

This seminar course provides students of law with an opportunity, first, to get acquainted with select works by classical and contemporary writers that represent major schools of thought in Western moral and political philosophy, and second, through close reading of and critical reflection on these works of enduring influence, to deepen their understanding as they prepare to engage in the public forum with a number of moral, legal, and political issues. Helping students develop and articulate their own perspectives, especially as Christian members of their body politic, is the ultimate objective of this course. There will be short weekly writing assignments and a term paper in lieu of final exam. Cross-listed in the undergraduate UIL program and the international law school J.D.-equivalent program.

▶ Legal Negotiation (Spring Semester)

Negotiation is a basic, special form of human communication and is considered as one of the most crucial lawyering skills. This course will expose students to a comprehensive and practical approach to negotiation and is designed to instill basic professional competency into students so that one can become an effective negotiator in an international context.

▶ Legal Research and Writing (Spring & Fall Semester)

The student will receive a rigorous introduction to legal reasoning, legal writing and research, and methods of interpreting the law. Several writing assignments will help the student hone their analytical skills and practice the fundamentals of drafting clear and concise answers to legal questions.

▶ Public International Law (Spring Semester)

The second half of the last century saw the impact of globalization, dramatic advancements in technological innovation, the spread of democracy and increased privatization. As these forces continue to affect the international system today, traditional conceptions of international law with its foundational principle of state sovereignty are outwardly being challenged and transformed. In step with this phenomenon, the impact of international law has steadily gained momentum since the end of World War II to its place today in the mainstream discourse of law and legal studies. This course will introduce students not only to the content and processes of public international law and the institutions that seek to enforce and shape them, but also to the bigger picture of the tension that exists between long standing assumptions about international law and the realities of globalization. Ultimately, the course will hopefully give students an opportunity to make a critical appraisal of the international legal system from a Christian worldview.

▶ Survey of American Law (Spring Semester)

This is an introductory law course designed for those with little to no knowledge of US law or its legal system. We will explore a broad range of topics to include the following: 1) Background of US Law, 2) the US Federal and State Court Systems, 3) The US Civil Litigation Process, 4) The US Criminal Trial Process, and 5) Ethics and the Legal Professional. Throughout the course, we will be referring to Scripture to add to our understanding.

▶ US Contracts (Spring Semester)

This course is designed to introduce undergraduate students to the fundamental concepts and sources of contract law. This course evaluates the core components of a legally binding agreement or promise and examines issues that affect such enforceable agreements. Students will get a chance to study what constitutes as a breach of contract and the damages available.

▶ US Constitutional Law (Spring Semester)

This course will introduce students to a foundation in constitutional law applicable in the United States. Students will learn three main topics of the U.S. Constitution: Separation of Powers, Federalism, and Protection of Individual Rights. Students will also be familiar with the major theories and cases of the United States Constitution through this class.

▶ US Criminal Law and Procedure (Spring Semester)

In U.S. Criminal Law, a distinction is made between the law's substance and procedure of the justice system. Substantive law defines rights and obligations. Procedural law establishes the methods used to enforce legal rights and obligations. In this course, we will explore what constitutes a crime and how that crime is handled/processed within the U.S. justice system

▶ US Torts (Spring Semester)

The Law of Torts is probably one of the most litigated areas of law in America and perhaps the world. In this course, we will explore what a tort is, the different types of torts, tort damages, and legally recognized tort excuses/defenses. We will also consider how tort law relates and differs to criminal and contract law.

SCHOOL OF MECHANICAL AND CONTROL ENGINEERING

▶ Bionic and Biological System Engineering (Spring Semester)

Recently, various attempts have been tried to interpret human body as a system and to analyze its principle and apply it to other fields. The objective of this course is to learn how to apply various engineering knowledge such as mechanics, linear algebra, electrical circuits, control engineering, signal processing, etc. to biomechanics. By taking this course, students will be able to develop basic concepts of biological analysis, understand biological systems through application examples, and simulate through biological modeling. This course consists of lectures (1 hour) and laboratory exercises (2 hours) every week and conducts team-based laboratory exercises and two mini projects.

▶ CAE Mechanical Design Analysis (Spring Semester)

Understand the concept of the finite element method(FEM) and structure of FEM software. Students will solve mechanics problems (solid mechanics, thermal stress, mechanical vibration, collision problems) with FEM and learn how to use FEM for industrial applications.

▶ Capstone (Spring & Fall Semester)

The project targets for two semester-long works by a small group of students. In Capstone Design1, Students work to derive a final design that will be used in Capstone Design2. Students perform experiments and simulations for better implementing their designs. Two students are recommended to join to form a team. Occasionally, three students can construct a team if their advising professor allows. Students can select topics by themselves or obtain topics from the advising professor. Once the topic is chosen and the team is constructed, students do literature survey and parts survey for their project. The team generates a project proposal under guidance of the advising professor and finally come up with the final design report at the end of the semester.

▶ Combustion and Engine (Spring Semester)

This course covers basic engine cycles, thermal chemistry applied to engine fuel, inhalation made sequentially in the engine according to air-fuel, cylinder motion, combustion, exhaust and emissions, and heat transfer, friction, lubrication, etc. Students will do a project on the next generation of power sources for cars.

▶ Digital Logic Design using FPGA (Spring Semester)

This course aims to develop students' knowledge and expertise in digital systems/logic design with HDL (Hardware Description Language) and to present techniques from initial specifications down to final implementations with FPGA for rapid prototyping. This course will teach students the use of the Verilog language for representation of digital signals, use of IEEE standard logic package/library, design description, design of arithmetic, combinational, and synchronous sequential circuits. In this course, students will conduct experiments to learn the complete flow of digital systems design using FPGA(Xilinx) from design entry, implementation/verification, to download bit stream.

▶ Electric Circuit (Spring Semester)

It is possible to clearly understand the electrical characteristics and circuit analysis methods for the elements used primarily in electrical circuits. Based on this, the ability to analyze and design various electrical circuits is developed. In this course, we will learn about the direct current and alternating current circuit analysis techniques, the transient response of electrical circuits, and the frequency characteristics.

▶ Electric Circuit Lab (Spring Semester)

This course provides the several labs for more understanding on the basic control circuit theory. The topics covered in this course includes the nodal/mesh analysis, equivalent circuits, transient response of RLC circuits, AC steady state analysis, opamp and so on. As well, this course introduces the usages of various instruments which are often used for the control circuit design and analysis.

▶ Heat Transfer (Spring Semester)

The energy can be transferred by interactions of a system with its surroundings. These interactions are called work and heat. When the work and heat is utilized to operate the system, enough energy is required to operate the system properly. Therefore, the phenomena of heat transfer process and the technique of supply and control of the work and heat should be understood. In this lecture fundamental concepts and principles of heat transfer process will be taught. The knowledge of heat transfer is applied to solve problems relevant to real system. The analytical and numerical solution of the temperature distribution and heat transfer rate will be discussed. The three main heat transfer mode, that is conduction, convection, and radiation, will be explained. The heat exchanger which is the key component of the heat transfer system will be treated.

▶ Numerical Analysis (Spring & Fall Semester)

- This course covers the fundamentals of numerical methods(NM), which is solving mathematical/engineering problems in a digital processor such as a PC or an MCU. Through this course, students will learn important NM algorithms to solve for linear systems, non-linear systems, interpolation, differentiation, integration, and ordinary differential equations. Also, students will enhance their programming skills by implementing the NM algorithms in C/C++. Students will create their own NM(numerical method) library in C/C++to solve some engineering problems in Thermal/Dynamics/Vibration Analysis, Circuit Analysis, Control Design and more.
- The basic concepts of numerical analysis and its use in solving engineering problems are introduced. After discussing various root finding methods several methods of solving algebraic equations are introduced. A variety of curve fitting and linear and nonlinear regression methods is discussed. Also various schemes of numerical integration are introduced. Fourier analysis and FFT are discussed.

▶ Power System (Spring Semester)

Analysis of power systems, including renewable energy sources, transmission lines, power flow, transformers, transmission and distribution systems, synchronous generators, stability, short-circuit faults, and system protection.

▶ **Post-Capstone (Spring & Fall Semester)**

It is a subject of deep individual research jointly led by business experts and university professors to improve current business understanding and on-site development skills. Individual research to resolve pending issues of the enterprise is conducted under joint guidance by the corporate-director, and research can be carried out on site upon request of the enterprise. Further, it can be operated as an intensive individual study to modify and supplement the results developed through the capstone curriculum of the general engineering complex I/II.

▶ **Statics (Spring Semester)**

Cultivate the analytical ability of the forces acting on the mechanical system. After laying the foundations of vector analysis, force analysis and moment analysis, the method of modeling the support of the structure by drawing a free object diagram, is studied for the method of modeling the support of the structure, the external force (load), the counter force calculation, the resistance calculation, and the friction force. This course gives an experience in the design of the force analysis and the associated engineering system through the design tasks. Finally, students will learn about the center of gravity, area inertia, and mass inertial moment related to the shape of the object.

▶ **Embedded Controller 1 (Fall Semester)**

The overall objective is to learn the overall architecture of CPU and memory and learn how to program a microcontroller for an engineering application. This course covers basic microprocessor concepts and software programming. It will provide labs and tutorials to help students learn how to apply an MCU to design an embedded system. Software is developed in ARM Cortex-M assembly and C; most labs will run on an STM32F4 soc board. Topics include number systems, logic & arithmetic, memory control, interrupts, GPIO, ADC/DAC, timers, motor control, sensor acquisition and more.

▶ **Energy Plant Engineering (Fall Semester)**

This subject will learn about power generation plants using renewable energy such as hydraulic, wind, geothermal and solar power, as well as fossil and nuclear energy, as well as oil/ petrochemical plants and seawater desalination plants. It also learns about related plant engineering and increases understanding of practice through team-specific projects.

▶ **Field Research & Development (Fall Semester)**

▶ **Integrated Design-Production Engineering (Fall Semester)**

This course is a lecture on product design, process design, process control, manufacturing technology, etc., which is the basic quality that engineers in the manufacturing industry should have, and introduces productivity increase and cost reduction that incorporate ICT and IoT technologies, which are the latest topics of the manufacturing industry. In addition, students will discuss the engineering ethics that manufacturing workers should have. Through this subject, the goal is to develop basic skills to work as a manufacturing engineer by understanding the basic understanding of the manufacturing industry from product design to production management.

► Machine Vision (Fall Semester)

This course is an introductory course of machine vision. Machine Vision is an introductory course that covers core principles of image processing and object detection and tracking to provide useful visual information for Energy/ Environment, Autonomous Vehicle, Robots, and Automation systems.

This course is composed of 2 parts.

Part1 : Basic Image Processing

basics of image formation, image filtering, feature recognition, object segmentation and feature tracking. It will also introduce some machine vision applications such as road lane detection and face detection for autonomous vehicles and robots.

Part 2: Deep learning application

you will learn how to detect and segment an object by using Deep Learning algorithm.

In the course, you will learn how to build a visual sensor system for

- Road lane detection system
- Vehicle detection
- Face, Person detection
- Object Tracking
- Defect object detection and more

Students are required to build his/her own program in C/C++ and write lab reports for various assignments given in class, which must be submitted individually.

► Measurement and Instrumentation (Fall Semester)

This course intends to give an comprehensive understanding to sensor technologies for controlling mechatronic systems. General knowledge about sensors, signal processing, and PC interface will be studied. Mechatronics components with emphasize on widely used sensor and actuator types will be studied and laboratory experiments will be performed.

1. Fundamental Sensor Technologies

- (1) Component Interconnection and Signal Conditioning
- (2) Performance Analysis of Instrumentation System
- (3) Principles of Analog/Digital Sensors and Transducers

2. Experiments

- (1) PC interface using DAQ: analog, digital I/O, sampling rate control
- (2) Sensor Experiments and Analysis

► Mechanical Engineering Experiments (Fall Semester)

Students will be able to integrate the knowledge of mathematics, physics, and computers to apply the knowledge to mechanical engineering. In addition, Students will be able to plan and promote proper mechanical engineering experiments and draw conclusions from engineering perspectives based on the results of the experiments.

► Modern Control Theory and Application (Fall Semester)

This course aims to cover the modern control theory for dynamical systems. To do this, systematic approaches to design and analysis the multi-variable feedback control system are introduced. As a practical design example, the guidance and control of unmanned autonomous vehicles is taken into consideration. Topics include pole assignment, optimal control, and state estimation techniques which can be applied for industry. Through this course, students can practice to develop

their own modern controller design and analysis tools using MATLAB and SIMULINK. In order to help students' understanding on modern control systems, a design project will be given.

▶ Power Electronics (Fall Semester)

Introduction to the power electronic systems, power controls, switching circuits; power converter topologies and magnetic components including AC/DC, DC/DC, converters and their applications

▶ Thermal Hydraulic Experiment (Fall Semester)

This subject learns the experimental methodology, the use of measuring devices and experimental equipment, the data analysis method, and the preparation of experimental report to conduct actual experiments around the field of thermoplastics, and directly verify basic knowledge related to mechanical engineering by experimenting.

SCHOOL OF SPATIAL ENVIRONMENT SYSTEM ENGINEERING

▶ Architecture Design Studio 3 (Spring Semester)

The students are required to understand the dynamics of the community and provide resolute solution to enhance the livability of the section of the town they are dealing with. Understanding the fabric of the city, local culture, historic factors, density of the population, age distribution, local economy, physical structure of the town, are some of the issues that needs to be considered.

▶ Environmental Ecological Engineering 1 (Spring Semester)

This course is an introduction to environmental engineering. Special emphasis is given mainly on the solution of problems of environmental sanitation, notable in the provision of safe, palatable, and ample public water supplies; the proper disposal of or recycle of wastewater, the adequate drainage of urban and rural areas for proper sanitation; and the control of water pollution, and the social and environmental impact of these solutions.

▶ Environmental Ecological Engineering 2 (Fall Semester)

▶ Mechanics of Materials (Spring Semester)

This course provides the students with the basic capability essential to the engineering design of structures with solid materials. The main topics of this course include the concepts of stress and strain, and the calculations of stress and strain due to axial load, torsion, bending, and shear of a simple member. In addition, transformation of stress and strain, stability of columns, and basics of energy methods will be also included.

▶ Drafting and CAD (Spring Semester)

Graphic language, along with verbal language is a basic and fundamental communication tool for the architects, planners, and engineers as well as. As such, aim of this course is to prepare the students to use a graphic language for their future design and planning courses. The students will practice on the hand drawings, model makings and introduce electronic tools such as Computer Aided Design (CAD). Which will be used as a tool for their chosen field of studies.

▶ Drafting and CAD (Fall Semester)

Graphic language, along with verbal language is a basic and fundamental communication tool for the architects, planners, and engineers. As such, aim of this course is to prepare the students to use a graphic language for their future design and planning courses. The students will practice on the hand drawings, model makings and introduce electronic tools such as Autodesk CAD and other 3d modeling tools. This class will also practice the basics of design process to prepare them to future design classes.

▶ Environmental Impact Assessment (Spring Semester)

In this subject, students will be able to learn about the system and theory of environmental impact assessment in the first

half, participate directly in the environmental impact assessment process for actual development projects, and prepare an environmental impact assessment report in the second half.

▶ Fluid Mechanics (Spring Semester)

This course is an introductory course to fluid mechanics. Fluid mechanics is the study of fluids under all conditions of rest as well as motion. Its approach is analytical and mathematical rather than empirical; it is concerned with basic principles of fluid motion that provides the solution to numerous and diverse problems encountered in many fields of engineering, regardless of the properties of the fluids involved. However, emphasis is placed upon gaining insight into the operative physical processes.

▶ Land Use Planning and Development (Spring Semester)

In this subject, we learn about theories and practical projects related to land-use planning, and can be said to be the most central subject in urban. The purpose of this subject is to identify the form and change of urban space use, present a mid- to long-term plan of land use, and learn about strategies and regulatory measures to realize it.

▶ Soil Mechanics and Engineering (Spring Semester)

The basic concepts of soil mechanics such as phase relationship, particulate nature, permeable to fluid, total and effective stresses are introduced. Fluid flow through soil is discussed with the aid of flow nets and is also considered for anisotropic, non-homogeneous, and transfer conditions. The effective stress principle is introduced and the responses of the effective stress in the soil are discussed. Influence of seepage on the effective stress is also discussed. The strength properties of soil are discussed in terms of cohesion and internal friction angle. Various schemes of soil testing to determine soil shear strength are considered. The elastic deformation in a soil due to stress change is discussed. The consolidation theory is introduced and the stress path method, methods for determination of the consolidation coefficients are discussed.

▶ Spatial Numerical Analysis (Spring Semester)

The basic concepts of numerical analysis and its use in solving engineering problems are introduced. After discussing various root finding methods several methods of solving algebraic equations are introduced. A variety of curve fitting and linear and nonlinear regression methods is discussed. Also various schemes of numerical integration are introduced. Fourier analysis and FFT are discussed.

▶ Structural Engineering & Design (Spring Semester)

The main goal of this course is to teach the students how to design simple structures made of wood, steel, and reinforced concrete. The main topics include the review on Mechanics of Materials, and Structural Analysis. This course deals with structural systems, and load estimation. In addition, basic design concepts of flexure and shear will be discussed. Design methods such as WSD, LRFD, and LSD, together with the concepts of structural safety will be included. As design practices, design of members with wood, steel, and reinforced concrete will be covered. For a new design concept, optimum design method will also be introduced.

▶ Urban Planning and Design Lab (Spring Semester)

This class can be divided into two specific parts. The first part is what we call "Design the city". It is about how we can find the problems of urban space and how to define and cure the spatial problems. The students are going to find their subject on the basis of their independent thinking, and they will narrow down those subjects into a few team projects through their debate and gaming. Finally, they, as a few teams, will find the most valuable ideas about how we can transform the city and settle down the found problems. The Second part is what we call "Making the city", and more specifically, new town designing. The students will be choosing the probable sites for developing a new town, and they will be focused on total design or master plan of the town till the end of the semester. The sites can be actual new towns which are going under planning process or imaginary new towns based on the students' imagination.

▶ Geotechnical Foundation Engineering (Fall Semester)

The basic concepts in soil mechanics, geotechnical engineering and structural mechanics are presented and reviewed. They will be used in developing the ideas and procedures that are popularly used in the practice of foundation engineering and design. Specifically, lateral earth pressures, bearing capacity and Mohr-Coulomb failure criterion are considered. Detailed design considerations and guidelines are given to the design of shallow footings (spread footing design) and are extended to trapezoid-shaped footings, and settlement of elastic foundations. Sheet piles are considered for various excavations and constructions. Another important class of foundation design for deep foundations is also discussed including friction piles in cohesionless soils, bearing capacity from Standard Penetration Test of cohesionless soils, friction piles in cohesive soils and piles groups. The final phase of the course will involve practical utilization of the acquired knowledge to a realistic building or structure.

▶ Numerical Modeling for Scientists and Engineers (Fall Semester)

Students will be learned the basic concepts of numerical solutions to various partial differential equations that arise in engineering science and use the Finite Difference Methods and the Method of Weighted Residuals. In addition, students will understand the stability of the transient problems and apply numerical methods to various practical problems. Lastly, they will gain the ability to interpret the results of numerical computations.

▶ Reinforced Concrete Engineering (Fall Semester)

Reinforced concrete is the most widely used structural material in the construction field.

This course teaches the fundamental Design concepts and Design methods essential to Reinforce Concrete Structures including:

- Introduction and Histories
- Material Properties
- Design of Reinforced Concrete Beams from flexure, and shear
- Design of Columns
- Design of Slabs
- Design of some example structures such as Footings and Retaining Walls.

► Site Planning and Design (Fall Semester)

This semester the students will face multiple issues in dealing with housing issues. Following are some of the issues that will be discussed in the class:

1. Basics in housing development
2. Housing as community development
3. Urban reconstruction via housing / Housing within urban structure
4. Social responsibilities in housing

This is a unique class where the students will combine the knowledge of planning with architecture. Housing development is not simply creating an expressive architecture or designing a complex of the houses to satisfy the programmatic needs. Housing or any kind development must satisfy the needs of all the participants; and of all the participants it must finally satisfy the final user, the people who will be using it daily. It is a responsibility of the Architect to intervene to give as much influence as possible for the end user group, the people who actually use the facility. Housing development also means responsibility to the social structure which the project is implemented; that is to say housing should be sensitive and consider the needs of the existing community. In order to be an influential designer, the designer must understand the process of the development. A development as a design - process, is intrinsically cultural, economical, and political. This class will identify each force that affects the development and identify each participant and their goals. By understanding the separate goals of each participant in the development process the architects can be more influential on the quality of the housing and the environment. The class shall be composed of lectures and design exercises culminating with final project presentation. Each student is expected to apply the concepts taught at the class into their design creatively.

► Structural Analysis (Fall Semester)

In the field of Civil and Architectural Engineering, the final products are usually structures, which should be designed and constructed. In this procedure, the key part is Structural Analysis to be discussed in this course. This course explains the basic principles and concepts of structural analysis and design, considering the physical behavior of structures. This course teaches the basic techniques for analyzing structures and structural members, including trusses, beams, and frames.

The topic includes:

- Analysis of statically determinate structures to calculate reactions, and internal member forces such as axial forces, shear forces, and bending moments
- Influence lines for statically determinate structures
- Deflections
- Analysis of simple statically indeterminate structures.

► Theory of Housing and Habitation (Fall Semester)

This subject consists of two parts: housing theory and residential theory. In the housing theory section, we learn about the nature of housing, characteristics of the housing market, government policies to stimulate the low-income housing market, for example Public Housing, Housing Boucher, as well as Filtering Theory. In residential theory, the elements of housing planning and design are learned, especially about Elderly housing and future housing Eco-Home and Intelligent housing. It also learns about postmodern tendencies about the theory of housing through lighting in modern architectural history, especially about co-residential complexes, such as Howard, Le Corbusier, Jane Jacobs, etc.

▶ Theory of Urban Structure (Fall Semester)

Cities are diversified, complex and constantly changing. Why does this happen? What are the characteristics? Questions related to cities like this, especially urban structures, will be sorted out through traditional or new theories and concepts. Through this, we will try to understand the mechanism of formation and transformation of urban structure, understand the nature of the present problems we are experiencing, and predict future cities.

▶ Vibration and Waves (Fall Semester)

This course is intended as an introduction to the study of vibrations and waves in general. The vibrations or oscillations of mechanical systems as well as natural systems constitute one of the most important field of study in engineering and science. Subjects discussed in the course include free surface waves, periodic motions, the free vibrations of physical systems, forced vibrations and resonance, Coupled oscillations and normal modes, Fourier analysis, progressive waves, boundary effects and interference, etc.

CREATIVE CONVERGENCE EDUCATION

▶ Curriculum for Education and Evaluation (Spring Semester)

This course introduces the basic theories and practices of curriculum planning, development, implementation, and evaluation in primary and secondary school situations, which include a historical, sociological, philosophical, and psychological examination of school curriculum, theories, trends and curriculum structure. The course also prepares the teacher candidate to make decisions about best practices that should be implemented in the classroom as a part of the teaching and learning process.

▶ Educational Psychology (Spring Semester)

Course Format: The first ½ of the course will focus on psychologists and their theories of development and learning as well as examining faith development and how to teach for growth in the life of faith. The second half of the course will focus on applying those theories to the learners, the classroom, and the implications for the teacher. Class format includes lectures, group presentations, papers on assigned topics, a midterm exam and a final term paper project. Instruction, textbook, and presentations are to be 100% in English. Work that is received late (class period when work is due) will receive a percentage point reduction.

▶ Education for Global Citizenship (Spring & Fall Semester)

▶ Honesty, Integrity & Responsibility: Ethics and Global Citizenship (Spring & Fall Semester)

This course presents ethics as the foundation for Global Citizenship Education (GCED), and living as a global citizen in light of the UN's Sustainable Development Goals (SDGs). "Citizenship" assumes the existence of a community. Communities can only exist and thrive with shared values. Citizenship once meant belonging to a city and, until very recently, membership in a nation state in a world of nation states. Today, with extraordinary developments in trade, travel and technology, citizenship increasingly means membership in a global community, albeit a global community with competing demands on its members from their own nation states, civic institutions, ethnic and religious groups, families and, increasingly, the members' own sense of themselves as autonomous actors with rights of their own. How does a community this large and this diverse establish and effect shared ethical values, including, most importantly, a shared sense of what constitutes the "good" for all? Are ethics part of a transcendent moral order, or does being human mean determining for ourselves what is right and what is wrong? Our course will explore these questions. It will cover the traditional ethical schools while focusing on areas in which globalization affects an unprecedentedly large number of people across national borders: business, government and technology.

▶ Mathematical Analysis (Spring Semester)

Main interest of this course is theoretical foundation for calculus. Calculus had been developed without rigorous justification. In 19th century, several pathological phenomena need to be explained. Modern theory was developed to lay out foundation for calculus. Based on the theory, further generalization was possible. Our course focuses on learning how to prove theorems, which is basic training for math major. Abstract concepts will be introduced and need to be interpreted.

► **Networking for Our Future Survival: Sustainable Development and Environment (Spring Semester)**

The world has rapidly changed for last half decades, socially, economically, and environmentally. The global population has increased from 3 billion in 1960 to 7.4 billion in 2016. Global trade and communication have also increased by remarkable developments of innovative telecommunication technologies and transportation. However, these changes also threaten our environments and lower our living qualities. Environmental degradation undermines future development progress and threatens human well-beings. It definitely connects to public health issues such as some types of cancers, vector-borne diseases, emerging animal to human disease transfer, etc. Therefore, environmental sustainability can play a significant role in contributing to development and human well-beings. It can reduce human vulnerability, causing human migration and insecurity, such as in the case of storms, droughts or environmental mismanagement. The goal of this course is for students to engage in critical thinking about a variety of developments and their impacts on our society. The study will challenge our communities, corporations, and institutions to implement sustainable actions and balanced developments. The course will be divided into two learning methods; 1) lectures by the course faculty and guests from academia and industry, 2) participatory group (or individual) presentation and discussion.

► **Numerical Analysis (Spring Semester)**

The basic concepts of numerical analysis and its use in solving engineering problems are introduced. After discussing various root finding methods several methods of solving algebraic equations are introduced. A variety of curve fitting and linear and nonlinear regression methods is discussed. Also various schemes of numerical integration are introduced. Fourier analysis and FFT are discussed.

► **Universally Visible and Transcendent World View for Global Citizenship (Spring Semester)**

This course is to provide students an opportunity to overview various world views, which control the people, society and our government in our times. Further, goals, driving force and outcomes of the world views will be compared. Knowing that this world is entangled with various global issues and problems to be resolved and that it is we who are to be changed first in order to provide the solutions for the world issues, we will search for the essential character and components to be attained. Eventually the attendees will be invited to plan and practice the meaningful life-time tasks. The class will consist of a short lecture on the issues, participants' presentation on the issues, group discussion and action planning without formality. After taking this course, it is expected for participants to plan their lives as global changers and to initiate the life they decide to take.

► **Vision, Work and Calling (Spring & Fall Semester)**

Many students struggle to better understand the vocation question, "what am I supposed to do in the world?" Beyond the need to get a good-paying job, most people have little experience in connecting this immediate question to ideas about the larger purposes of life. This class will examine the broader context that can provide tremendous help in answering the "vocation question." Further through this class, each of us will better understand the kinds of strengths, talents, and passions that can direct our lives of service in the world. Finally, this course will enable students to better understand a course of study that will help them pursue a particular vocation in the world. We will approach the course in three stages. In the first stage we ask questions about our fundamental condition and identity: where are we and who are we? Then we examine how different peoples have taken up work. We conclude the first half of the semester examining the place of work within Christianity. During the second half of the semester students will develop the broad themes to their own lives. After surveying ways in which Christians describe their own ways to combine faith and work, we turn to an examination of personal strengths through the strength finder program. We then turn to a discussion of spiritual gifts and their connections to vocation. Our semester concludes with an investigation into the ways in which continual growth often prompts career change.

▶ Advancement of Capacity Building for Global Citizenship (Fall Semester)

The purpose of this course is to nurture the students as future leaders with the ability of 'Capacity Building' for themselves and others, which will enable the individuals, organizations, and communities to obtain, improve, and retain the skills, knowledge, tools, equipment and other resources needed to do their jobs competently or to a greater capacity so that they may survive, adapt and thrive in a fast changing world. This course is designed to provide the knowledge and skills as well as some practical exercise in 'capacity building', but the emphasis of the course will be laid rather on the transformation of the students to be the better global citizens with the ethical, moral mindset and caring heart for the people in the isolated and inferior environments to overcome the cause of their exclusion and suffering with the what they have studied and practiced in this course, 'Capacity Building'. The contents of the course will include the understanding of the essential elements in designing and practicing the art of capacity building, along with some case studies conducted in developing countries to improve the environments through capacity building in the fields such as higher education, clean water supply and sanitation, and well-being of children. Based on group effort, students will carry out the actual practice of 'capacity building' as a term project during the course.

▶ Creative Learning Internship (Fall Semester)

▶ Modern Algebra (Fall Semester)

Students will learn basic definitions and properties of groups, rings, and fields with some applications.

▶ Mutual Collaboration for Sustainable Prosperity: Breeding Empathy for Global Citizenship (Fall Semester)

This course is about nurturing globally engaged citizen; a human who has empathy with other people and the planet, who is willing and able to play as an agent to address the challenges that are increasing in numbers and in complexity within the globalizing world, with an intention to contribute to achieving the UN's Sustainable Development Goals (SDGs). This course focus on how to grow applied empathy or compassion, which is key trait of global Citizen: from the perspective of a tennis Babo(mania) who aspires to play like Federo The course also draws guidelines from Bible and neuro science.: Beside lectures, students will have experience of finding their model global citizen for Beholding. Students will make a plan to address the issue individually and as a group. Students will maintain a journal on their search for their model citizen and the issue and solution option. While this course utilizes methodologies such as, project based learning, case study, student-designed projects and social service learning that are used by changemaker education and social innovation courses, the focus of this course is more on formation of the mindset than problem solving skills, which will be provided more extensively by other course concurrently or as a follow-on course next semester on Global Problem Solver.

▶ Philosophy of Christian Education (Fall Semester)

What is philosophy? Philosophers asks questions like: "Who am I?" "Why am I here?" "What purpose does my life serve?" Philosophers ask these questions not only of themselves but also of the world as a way of understanding how who we are shapes what gives life meaning and purpose. In that activity they are like the best teachers who also ask questions to elicit understanding from their students. This course explores the relationship between philosophy and education, how who we are shapes and forms not only what we think and believe but also how we teach. Asking the questions of who we are and why we are here are only the first steps toward understanding who we are as teachers and what our purposes and

goals are in educating. Questions of identity, meaning, and purpose comprise the curriculum of both philosophy and education; finding answers, however tentative, to these questions will inform, shape, and direct both our lives and our teaching. Come explore the ultimate questions of philosophy and their practical application to the vocation of teaching. This semester I am adding a new component to the class: using children's literature to understand the big questions of life: What is real? What is true knowledge and how do I know? What is the right thing to do? How does one define beauty? Using popular children's books, teams of students will read to HIS students one time, and together with them explore the world of philosophy and hopefully regain a child's heart and love for living and learning. Children are not afraid to ask the big questions, and we can all learn something from them about wonder, mystery, and how to live each day to its fullest. Using popular children's books is one way we can explore the world of philosophy.

GLOBAL LEADERSHIP SCHOOL (ELECTIVE COURSES)

▶ Biomedical Ethics (Spring Semester)

Key Issues in bio-medical ethics will be dealt with. From the 4th week, for each topic, one session will be devoted to students' presentation and the other professors lecture. Each student will present on two topics to their team members.

▶ Calculus 1 (Spring Semester)

Calculus is one of basic language for science and engineering. This course is aimed at students who learned basics on differentiation and integrations and are going to major in engineering and science. Course focuses on differentiation and integration of transcendental functions: exponential, logarithmic, trigonometric functions. Several applications of derivatives and integrations of functions related to science and engineering problems will be considered.

▶ Calculus 2 (Fall Semester)

This course is continuation of Calculus 1 (If you took science track at Korean high school, you have enough preparation). Calculus is one of basic mathematical language for scientist and engineers. The course will introduce several advanced calculus techniques as well as several widely used functions. It will also offer some foundation for other course such as differential equation, Calculus 3 (Multi-variable calculus), linear algebra. This course is designed for students majoring in engineering or natural science. This course is focus on advanced techniques of integrations and their application, infinite series approximation of functions using polynomials, introductory concept of coordinates, vector, matrices and curve theory. Examples will be motivated by application to physical science and engineering.

▶ Christianity and Modern thoughts (Spring & Fall Semester)

Background: to discern various modern thought streams and to take a proper action.

Contents: to examine diverse modern thoughts, analyze and criticize them from the Christian worldview.

Necessity: to offer a Christian alternative and to put it into practice in a concrete life.

Method: Lecture, team presentation and discussion

▶ Common Readings (Spring & Fall Semester)

In the Common Readings course, students will select, read, and write book reports about a variety of texts in their own time. The reports will lead students to explore the motivation and goals of the texts. It is not sufficient to just summarize the content or message of the book. The book reports require students to provide an educated guess about the audience, occasion, and purpose of the writer in writing the book, with references to the text. Since there are no class meetings, students must organize their schedules and set aside regular time to complete readings and assignments to meet the deadlines. It is important to understand that all four book reports must be submitted on time, and late work is not accepted. Students should refer to the His Net course notice board for book report instructions. Students are strongly recommended to check the noticeboard regularly for important course information.

▶ **Differential Equations and Applications (Spring & Fall Semester)**

Differential equation offers a basic language for modeling of various phenomena of natural and social sciences and engineering. Our course focuses on basic mathematical theory and practices of solving differential equation. This course is for science and engineering major students and some senior students in economics.

▶ **EAP-Communication Arts and Science (Spring & Fall Semester)**

We will look at various aspects of Communication Arts such as speeches, presentations, group problem solving, debate and journalism / media writing.

▶ **EAP-Contents Convergence Design (Spring & Fall Semester)**

Students will learn how to effectively Listen and Read (input) and will respond with Speaking and Writing (output) in their second language. Effective precis, writing, presentation, and discussion skills will be modeled and supported, and students will have opportunity to practice and improve each of those skills. Full rubrics will be provided for all tasks; students will have a clear grasp of what is expected in order to succeed at any evaluated task. Students will be encouraged to interact with and analyze a variety of texts, images, and designed objects using the vocabulary and principles presented; to apply their acquired knowledge in several projects throughout the semester; to engage with preparing for academic tasks in their second language, presenting/submitting those tasks, and analyzing the result and feedback of those tasks; to continually use the content and topics of the class material to exercise their second language abilities in both input and output; and finally to integrate their Christian faith and the philosophies of design into an 'artist's statement' or 'designer's principle'.

▶ **EAP-Counseling Psychology and Social Welfare (Spring & Fall Semester)**

This course builds on the skills acquired in the English Reading and Discussion and English Grammar and Composition courses and prepares you for the advanced English language in the Counseling Psychology and/or Social Welfare major courses. We will learn how to find and carefully read the psychological/scientific literature, evaluate and synthesize research, give a professional presentation, and write a professional paper using APA style. Our semester is divided into 4 sections, which each end with a major assignment, and you will study one psychological disorder with a partner for the whole semester. I will show you how to do each assignment and guide you with feedback to help you succeed. About 30% of our time consists of lecture; 60% is spent doing research, writing, and peer or professor consultations; 10% is spent giving and evaluating peer presentations.

▶ **EAP-Engineering (Spring & Fall Semester)**

The course is designed to increase student competency and fluency from high intermediate to advanced English language comprehension and production levels. Students will be directed and encouraged to adopt engineering standards and principals within the Christian worldview of HGU; they will also be expected to develop and use critical thinking skills as they engage with a variety of engineering theories and practices.

▶ **EAP-Life Science (Spring & Fall Semester)**

EAP (Sc.) is specifically designed for students planning to study in the School of Life Science, providing a bridge from

previous general DLE academic English language courses into their major studies within the School of Life Sciences. It equips Life Science students with the English language skills they need to study successfully. In keeping with the values of Handong Global University, EAP (Sc.) encourages students to explore and develop God's creation in a way that worships the Creator God, blesses humanity and conserves the natural world.

EAP (Sc.) develops students' competencies in all four language skills (writing, speaking, reading, and listening) while accomplishing communicative tasks relevant to the discipline of Life Science. The level of study takes students from intermediate - high intermediate in ERD/EGC to advance upon completing EAP (Sc.).

WRITING deals with the preparation of research reports, and critical literature reviews that are informative and persuasive. Specific writing skills such as paraphrasing and synthesizing information, using hedging and boosting expressions to vary the force of an argument, avoiding wordiness and ensuring textual cohesiveness are developed at an advanced level.

Development of READING skills focuses on increasing students' reading speed of science texts while improving comprehension, understanding and retention of information. Specific skills of skimming for main ideas and scanning for specific information are further developed with application to reading academic textbooks and academic journals.

An important feature of reading fluently and writing effectively in the Life Sciences is the possession of an adequate scientific VOCABULARY that is both broad in its scope and deep in its understanding. EAP (Sc.) adds words, expressions and idiomatic language specific to the biological sciences to the general academic vocabulary already developed at lower levels of the DLE curriculum.

The SPEAKING component of EAP (Sc.) focuses on the preparation and presentation of research reports in formal settings. Students will develop their speaking skills to lead and to actively participate in classroom and project team discussions as well as practicing strategies to handle questions during and following presentations.

Finally, EAP (Sc.) aims to develop students LISTENING and note-taking skills to cope with the diversity of English styles presented to students by Korean and non-Korean faculty, peers, visiting lecturers and internet sources. The communicative, task-based approach of EAP (Sc.) will also encourage students to develop their critical thinking skills as they engage with scientific information.

► EAP-Management and Economics (Spring & Fall Semester)

English for Academic Purposes, Management & Economics, hereby referred to as EAP-Man.Ec., represents the final level of the Department of Language Education (DLE) English language curriculum. EAP-Man.Ec is specifically designed and designated for students whose first and/or second majors are in the School of Management & Economics, thereby providing a bridge from previous general DLE academic English language courses to their major courses of studies. EAP Man.Ec. will equip Management and Economics students with English language research, presentation and communication skills required in their future careers. In accordance with the Biblical values & principals promoted by Handong Global University, EAP Man.Ec. will motivate and encourage students to investigate conventionally accepted business and economics models within a strong, evangelical Christian world-view. EAP Man.Ec. is intended to help students develop student competencies in all four productive and receptive English language skills (writing, speaking, reading, and listening) through the study of communicative tasks relevant to the discipline of Management & Economics. This course of study is designed to increase student competencies/fluency from the high intermediate to advanced English language comprehension level. The communicative, task based approach of EAP Man.Ec. will also encourage students to develop their critical thinking skills as they engage with a variety of management and economic theories and practices.

▶ EAP-Humanities (Spring & Fall Semester)

EAP (Humanities) is an advanced English language course that is available at the final level of the Department of Language Education (DLE) curriculum. EAP (Humanities) is designed for students in the school of ISLL, with a specific focus on students who have selected Literature or Linguistics as their major/s. This course aims to familiarize students with topics related to the study of the Humanities (with a particular focus on Literature and Linguistics), while developing their overall English language proficiency. The course is intended to prepare students for close reading and critique of a variety of literary and academic texts in which students demonstrate their “own voice” in relation to a text. Students will read articles, book chapters, and essays on topics related to the study of the Humanities. One longer literary work (usually a novel) will be read and discussed in class during the course of the semester. Students will participate in discussions about these readings and will prepare and deliver presentations based on these texts. Students will write well-organized academic essays which demonstrate substance and clarity. These essays will be strengthened via self-editing and peer editing.

▶ EAP-Information Technology (Spring & Fall Semester)

EAP-IT is an advanced English language course that is available at the final level of the Department of Language Education (DLE) curriculum. EAP-IT is specifically designed for students who have selected Computer Science & Electrical Engineering or Global Entrepreneurship & Information Communication Technology as their major. This course aims to familiarize students with IT-related topics and develop their overall English language proficiency while working communicative and project-based tasks relevant to the IT field. In EAP-IT, students will work on developing all four language skills (writing, speaking, reading, and listening). For reading, speaking, and listening, students will read or listen to IT-related materials (e.g. textbooks, news/research articles, TED talks, etc.) and demonstrate their understanding through discussions and presentations. For writing, students will write reports and go through the process of writing a research paper. Additionally, students will learn words and expressions commonly used in the IT field.

▶ EAP-International Studies and Law (Spring & Fall Semester)

Students in EIS will further develop English language skill, in particular reading, writing, and speaking, while working with International Studies content material. Students must have completed ERD or EGC to be eligible to take this class.

▶ Essentials of English Communication (Spring & Fall Semester)

EEC-Online is based on an individualized e-teaching/e-learning concept and is designed to be completed electronically. Students successfully completing this online course will be considered to have met Handong University exit English requirements - upon successful completion, students should check with the HGU Academic Affairs Department regarding graduation eligibility. This class will focus on giving students opportunities to continue developing English reading, writing, listening, and speaking skills. Basic English concepts relating to grammar, vocabulary, listening, speaking & pronunciation, reading and writing skills will be covered and assessed. Student eligibility for the EEC-Online course, as determined by the HGU Department of Academic Affairs, is as follows: On Campus: 9th, 10th & 11th semester students still enrolled at HGU. Off Campus: Non-enrolled HGU students who have not completed the exit English criteria.

▶ English Chapel (Spring & Fall Semester)

Worship Service for students and profs of Carmichael College

▶ English Communication (Spring & Fall Semester)

The Department of Language Education (DLE) English language curriculum has three compulsory subjects that prepare students to study effectively in major courses taught in English and to be a better student overall.

English Communication (EC), the first required subject in the curriculum, is an intermediate course that builds on the low intermediate level language skills acquired in English Foundations and prepares students for the higher advanced English languages. EC is usually taken by freshmen. In EC all four language skills are practiced and developed, with a particular focus on listening and writing.

A lot of information in university courses is presented in lectures by professors or group discussions with other students. LISTENING develops the ability to follow and take accurate notes from lectures and discussions and to use those notes for different study purposes.

EC WRITING expands students' ability to compose well organized paragraphs that express the writer's thoughts clearly and logically. English grammar will be linked to writing to improve accuracy. READING is also an effective way to improve all the language skills. Reading in EC uses a variety of texts to enhance comprehension and analysis of English texts.

The textbook used in EC focus on words from the Academic Word List so this will develop students' academic vocabulary. In addition, strategies will be practiced dealing with new or unexpected words. SPEAKING will be practiced in class and small group discussions, and information reporting activities. Many opportunities are provided to interact with the teacher and other students through asking and answering questions.

English Communication aims to make students more confident and able to use these improved English language skills during and outside of class.

▶ English Composition (Spring Semester)

In this course, we will become more familiar with writing – from writing personal journals to producing paragraphs and essays that contain solid ideas supported by detail and evidence. We will examine our writing from the word level to paragraphs that build into coherent and unified essays. We will learn and view writing as a process, from brainstorming to the final draft, and understand the linkage between reading and writing. In order to write, we will examine readings that we will react to, use a variety of words and sentence patterns and styles so we could fully express ourselves in words.

▶ English Foundation (Spring & Fall Semester)

- In EF, you will experience the integration of speaking, listening, reading, and writing. The majority of class time will be used to develop your speaking skills. The focus, therefore, is to encourage you to orally produce the language that you already know. This will be done through applying discussion strategies to speaking English. Discussion Strategies is the name of the textbook and a description of its contents.

The main goal in our speaking section is this: 'to develop spontaneous conversation through the appropriate application of discussion strategies'. If you achieve this goal, you will succeed in the speaking portion of the course. Successful application of discussion strategies will not only result in a good grade, but will give you refined social skills that will help you in your personal and professional lives.

Furthermore, these strategies go beyond speaking/social skills to discipleship. Phil 2:3-4 Do nothing out of selfish ambition or vain conceit. Rather, in humility value others above yourselves, 4 not looking to your own interests but each of you to the interests of the others. What does Phil 2:3-4 look like practically? One application of this command is to listen to other people and respond to what they are saying with gentleness and respect. As you apply discussion strategies to your speaking, you will realize that this is what happens.

The reading portion of EF is designed primarily for homework and requires a second textbook, Cover to Cover 2. This portion will help develop your language awareness, comprehension, reading fluency, and encourage reading for pleasure. Quizzes will be given after every unit to ensure that you have done the readings and related activities.

For writing, we will be using the '2-Hand Approach'. You will be given a total of 8 charts which contain sentence forms. You will be required to master these sentence forms. By doing so, it will help you to write grammatically accurate sentences. After learning these sentence forms, you will be taught how to apply them to paragraph writing.

- In EF, you will experience the integration of speaking, listening, reading, and writing. The majority of class time will be used to develop your speaking skills. The focus, therefore, is to encourage you to orally produce the language that you already know. This will be done through applying discussion strategies to speaking English. Discussion Strategies is the name of the textbook and a description of its contents.

The main goal in our speaking section is this: 'to develop spontaneous conversation through the appropriate application of discussion strategies'. If you achieve this goal, you will succeed in the speaking portion of the course. Successful application of discussion strategies will not only result in a good grade, but will give you refined social skills that will help you in your personal and professional lives.

The reading portion of EF is designed primarily for homework and requires a second textbook, Academic Reading 101: Level 1. This portion will help develop your language awareness, comprehension, reading fluency, and demonstrate good paragraph structure. Quizzes will be given after every unit to ensure that you have done the readings and related activities.

For writing, you will learn the basics components of a paragraph and its structure. Moreover, the course includes a grammar component in which you will be given the opportunity to understand some important aspects of grammar related to good sentence writing. You will be expected to demonstrate these grammar skills in your paragraph writing.

▶ English Reading and Composition (Spring & Fall Semester)

English Reading and Composition (ERC) is a three-credit English course. Students in ERC must have completed EC, or have tested into ERC. The course is intended to prepare students to read and comprehend university-level English texts. Students will demonstrate thinking in a logical, orderly way, with sufficient language mastery to make their ideas clear. Students will examine model essays that demonstrate good writing techniques. Stemming from that reading, students will write well-organized academic essays which demonstrate substance and clarity. These essays will be strengthened via peer editing and self-editing.

▶ English Pre-Course 1 (Spring Semester)

This course provides students a lower level of English grammar, speaking and writing comparing to the mandatory English course provided by DLE.

▶ English Pre-Course 2 (Fall Semester)

Students who have completed the English Pre-Course 1 are required on the basis of the DLE and are required to learn

the elementary and intermediate English skills required for the English Foundation (EF) Students can gain confidence in English by developing listening, speaking, reading, writing, and presentation skills through the use of intermediate English language and relieve their anxiety in the face of foreign teachers. (Registration opens to North Korean defector)

▶ **General Biology (Spring & Fall Semester)**

Through this course, students will be learning about the key life phenomena of each object, such as animals, plants, and microbes, and also understand the concepts and terms of the whole of life. The subject will be carried out in a level degree of difficulty so that even students without the basis of biology have the opportunity to have basic skills in the field of bio science, and can take it as a liberal arts subject without any burden.

▶ **Handong Character-Building (Spring & Fall Semester)**

Purpose of the Course: Character Building implies a process, something that is active, ongoing, and deliberate. Character is who and what we are as persons and includes our attitudes, our dispositions, and our hopes and desires. Character is something that never stops changing and evolving. While some psychologists believe that a person's character is basically set by age 8 or 10, Christians believe that character is actually a living, dynamic, and growing aspect of the personality because Christians believe that one's growth in faith and relationship with God never ends. This course will examine the process of how we build our characters as unique human beings, and how to enhance that growth through learning about, acquiring, and practicing virtues that have been identified through the centuries as critical in pursuit of the good life, what Aristotle called, "eudaimonia," or doing and living well. The goal of this character-building course is to discover not only how to do good, but also how to BE good, people who are learning how to reflect the image and glory of God in our everyday lives, in every situation, in every relationship, in every moment.

▶ **Human Relationship & Self Growth (Spring & Fall Semester)**

This course aims to equip students with professional knowledge and skills to manage interpersonal interactions and for lifelong personal development. Also, students will examine the ways in which film influences culture, personal consciousness, interpersonal relationships, social structures, class consciousness, and both legitimizes, and in some cases, subverts the taken for granted world. Film will also be deployed to enhance understanding of different cultures in various parts of the world. Film as a form of pleasure and entertainment will also be integral to this course. This course utilizes various types of multimedia sources for programming to help students, who are beginners in programming, start programming. Students will learn how computer programs can be used to solve real-world issues and practice logical thinking and computational thinking during the programming process.

▶ **Introduction to ICT Application (Spring Semester)**

This course teaches students an entry-level block-coding programming language - App Inventor, which is easy and intuitive, as it composes computer programs using Lego-like programmable code blocks.

▶ **Introduction to Korean Studies (Spring & Fall Semester)**

This is an introductory course on Korean studies designed for both Korean nationals and international students who are interested in exploring Korea at a university level. Examining historical, cultural, and social issues of Korea, the course

attempts to enhance students' overall understanding on contemporary Korea.

The course provides an understanding of the music of the church, and invites students to reflect on why music has historically been one of the core components of Christian worship. Together, we will explore not only historical expressions of sacred music, but also learn something about the sacred traditions of different cultures.

▶ Introduction to Philosophy (Spring & Fall Semester)

Philosophy begins with reflective and critical thinking. This course investigates how reflective and critical thinking has been conducted in the history of philosophy and how philosophy has influenced human lives. Following a simple introduction to the first stage of philosophy, a few important issues in philosophy are discussed. Several short texts will be used as the guidance for our investigation. Since the 2nd Semester of 2018, we have adopted a new system of K-Mooc. Students have to watch online lectures and will have discussion in the class. From 3th week till 14th week, one session (normally Friday session) is substituted by online lecture, and the other session will be held off line in the classroom.

▶ Introduction to Sociology (Spring & Fall Semester)

Sociology is broadly concerned with the systematic study of society ranging in scope from micro-level social interactions to macro-level social structures and institutions. In this course, we will explore and analyze sociological issues such as face-to-face interactions and social networks, institutions such as education, the state, and mass media, and social categories such as race, class, and gender. We will be exploring each of these issues in terms of how they are constructed, changed, and reproduced, influenced by or comprise social structures, and patterns of everyday social life. We will cover a wide range of theoretical perspectives and dig into important debates and current trends in the field of sociology.

▶ Introduction to Studies in Education (Spring & Fall Semester)

This course is designed to provide understandings of foundations of educational practices, including biblical and theological foundation; philosophical foundation; and social and historical foundations of education. Also, the course explores the seven key elements that are involved in the educational processes, including the role of teacher, understanding the learners, goal of education, curriculum, teaching methods, educational environment and assessment.

▶ Special Lecture 2 (Spring & Fall Semester)

As an English lecture, both presentation and homework are conducted in English. We will cover various topics every week. To be used as a God's disciple, you'll learn how to have 'creative pioneering spirit' and 'Study-to-give spirit'. Plus, we will learn how to be a pioneer of one's country and have an indomitable will that never stops until you attain what you want to achieve. As a Handong member, lastly, you are learning the attitude of always being grateful.

▶ Studies of Korean History (Spring & Fall Semester)

This course is mainly designated to help the English-speaking students understand the general development of the Korean history. Therefore, the major topics dealt with in this class include pre-modern history such as ancient history, medieval history, recent history. As for the modern history of Korea, the significant progress in economic, intellectual and social realms before the state-door opened in the late 19th century will be treated in the light of the capitalistic sprout. And the reform movement of the late 19th century, Japanese colonial rule, the Korean people's independence

movement and some contemporary development of Korean will also be studied during the course. Students are expected to learn and understand the English translations of the important historical terms in the Korean history and to have the ability to explain the Korean history in English.

▶ Towards a Christian Worldview (Spring & Fall Semester)

Background: to examine our worldview which form the foundation of our lives and to establish it from the biblical perspective.

Contents: the meaning of worldview, the biblical worldview (creation, fall, redemption and consummation) and its application.

Necessity: to establish Christian identity and to analyze and overcome other worldviews.

Method: Lecture, team presentation and discussion.

▶ Practice of Church Music (Spring & Fall Semester)

- The course provides an understanding of the music of the church, and invites students to reflect on why music has historically been one of the core components of Christian worship. Together, we will explore not only historical expressions of sacred music, but also learn something about the sacred traditions of different cultures.

- We will study two pieces: Mass in G by Franz Schubert and a contemporary Easter Cantata "It took a miracle." by John W. Peterson. We will learn the typical style of Mass and cantata. In each class we will learn and practice songs in each piece and at the end we will have a little concert.

▶ Understanding Christianity (Spring & Fall Semester)

A study of the core doctrines of Christianity and its applications to life.

▶ Understanding History of Church (Spring & Fall Semester)

- The theme for this course is "Surrounded by a great cloud of witnesses," from Hebrews, Chapter 12. To study church history involves learning the stories of the saints who have preceded us, for their story is also our story. Justo Gonzalez, author of the text we will be using for this course, *The Story of Christianity*, says that church history "...is a history of the deeds of the Spirit in and through the men and women who have gone before in the faith....[and] it is the history of those deeds through sinners such as us," (Gonzalez, xvi). It is my hope that by reading, learning, experiencing, the lives of those saints who have witnessed boldly to their faith in Jesus Christ, our own faith shall be increased, enriched, and emboldened; that their stories become part of our story of faith.

- A motto of the Presbyterian Church, one branch of the Protestant body of Christians who call themselves Reformed is: 'ecclesia reformate, semper reforme' which means: The church reformed, always reforming." Justo Gonzalez, the author of our text this semester says in chapter 1 of Volume II: "As the fifteenth century came to a close, it was clear that the church was in need of profound reformation," (Gonzalez, p. 7). The church from its humble beginnings recorded in the Book of Acts had become a major player in the world of politics, power, and intrigue, and some would say it had been corrupted by that involvement. This course will look at the life and times of the church beginning with its reformation in the 16th century and its continuing evolution and reformation down to the present. We shall examine persons, places, events, and how the church has been shaped, deformed, and reformed, not only by powerful personalities, but also by God's reforming Spirit. Hopefully we'll also discover how that same Spirit is working to inform, form, and transform our lives daily so that we become more and more a reflection of the living Christ to a world dying for Good News.

▶ Understanding Korean Social Structure and Culture (Spring Semester)

This course is designed to introduce students to the social structure and cultural characteristics of contemporary Korean society, including those pertaining to the family, industrialization, gender, aging, labor, population, environment, religion, and political system. The course will particularly focus on social topics and issues that figure prominently in the lives of the Korean people, such as patriarchy, modernization, education frenzy, urbanization, authoritarianism, nationalism and multiculturalism. Each of these issues will be examined through sociological, historical, comparative, and balanced perspectives.

▶ Understanding the Bible (Spring & Fall Semester)

This module was created in accordance with HGU educational ethos in building Christian worldview as foundation of all academic disciplines. This module presents a basic survey of the Old and the New Testament theology and how its message relates to our modern contemporary world. The focus of the module will be on the selected New Testament books. However, references will be made to the entire redemptive history as depicted in the Scripture. The unique historical and theological backgrounds of each New Testament books will be explored in order to understand the main content of their message. The major purpose of this module is to enable students to absorb scholarly information about each books of the New Testament in relation to the Old and be able to provide exegetical insights concerning specific passages through groups discussions.

▶ Creation and Evolution (Spring & Fall Semester)

Understanding the purpose of my life-who am I, where do I come from, and where am I going? and developing a vision for the future on a biblical basis. Be ready and prepared to (a) ask the right questions, and (b) answer arguments related to evolution (principle of apologetics). To understand that the Bible and science are not contradictory; and also that the evolution theory is not supported by scientific facts. To learn and be challenged to critical thinking, and to distinguish between hypotheses (theories) and scientific facts.

▶ Advanced English Composition (Fall Semester)

In this course, we will become more familiar with writing -- from writing personal journals to producing paragraphs and essays that contain solid ideas supported by details and evidence. We will examine our writing from the word level to paragraphs that build into coherent and unified essays. We will learn and view writing as a process, from brainstorming to the final draft, and understand the linkage between reading and writing. In order to write, we will examine readings that we will react to and use a variety of words and sentence patterns and styles so we could fully express ourselves in words.

▶ Christian Apologetics (Fall Semester)

Students will be introduced to evangelical Christian Apologetics. This includes a survey of the history, methods, and application of apologetics. Students will also see how some of the ways apologetics engages the overall 21st century post-modern worldview.

▶ Data Collection and Application (Fall Semester)

While targeting students who have acquired the basic skills of programming, this course uses Python and is centered

around sample problems that cover from Data Collection, Analysis, to Visualization. Data Analysis cases connected to daily life and commonly faced in the work place are introduced in order to encourage students to attempt problem solving by incorporating Data Analysis in areas of personal interest or major.

▶ **Engineering, Faith, Ethics (Fall Semester)**

Technology has become a key element of human life. Engineers often find themselves in a situation which forces them to make important ethical decisions. Lay people are influenced by these decisions with or without knowing it. This course deals with the ethical issues that engineers are confronted with. Particularly the responsibility of both engineers and users of technology is emphasized. Non-engineering students are welcome to the class. It will provide a meaningful and interesting conversation between engineering and non-engineering students, as the issue of technology and engineering is relevant to everyone.

▶ **Engineering Mathematics (Fall Semester)**

Complex function theory is a basic tool for various analysis problems. Differentiable functions between complex planes will be defined and their properties will be studied. We will see its application to various analysis problems. Fourier analysis is basic modern tool of studying partial differential equation and applied math problems. Basic concepts and properties, their applications will be introduced.

▶ **General Chemistry (Fall Semester)**

1. You can learn and use the basic terms and formulas used in chemistry.
2. Describe the structure and principles that determine the chemical properties of the substance.
3. Understand and explain how chemistry plays a role in industry and engineering and how it can be exploited.

▶ **Globalization and Korean Popular Culture (Fall Semester)**

The increasing global circulation and consumption of Korean and Japanese cultural content-widely known as "Korean Wave" and "Cool Japan"- offers the unique opportunity to examine East Asia as the site of new regional cultural flows in opposition to "Western" cultural production's unidirectional hegemony. The state-driven development list strategy in East Asia has been seen as a model for other nations' cultural industries in the context of globalization. This course offers students the opportunity to understand the historical and recent transformation of media and culture in Asia with particular attention to Korea, Japan and the greater China region (Hong Kong, Taiwan and the mainland). Readings will not only examine the political-economic conditions that have led to the mobilization of media and cultural industry in East Asia, but also explore its social, cultural and political impacts on both regional and global level. We will also examine a range of popular media and site of cultural expression, from television to mobile media, youth culture to food culture, to grasp the complexity of contemporary media and culture in East Asia. This course draws on inter-disciplinary readings from media and cultural studies, anthropology, political science and sociology. You will be expected to read all assigned materials before class and actively participate in class discussion.

▶ **Integrative Study on Learning and Faith 1 (Fall Semester)**

1. Background: to examine the relationship between faith and science from the biblical perspective.
2. Contents: to examine various models on the relationship between the two.

3. Necessity: to equip students how to integrate the Christian faith with their majors.
4. Method: Lecture, team presentation and discussion.

▶ Introduction to Programming (Fall Semester)

- This course teaches students the basic computer programming techniques using Processing, the interactive graphics programming language, invented by MIT media lab.
- Processing has such useful features for programming beginners that its grammar is simple and the results are presented immediately in a visual form.
- Processing and Processing community has promoted software literacy in visual arts and also visual literacy within technology. It has continuously evolved into a general and professional development tool and now provides more than a hundred libraries to facilitate computer vision, data visualization, music composition, networking, 3D file exporting, and programming electronics.

▶ Linear Algebra (Fall Semester)

We will study systems of linear equations, properties of matrices, vector spaces, and linear transformations, which are useful in other disciplines such as economics, natural sciences, and engineering.

▶ Mission Perspective (Fall Semester)

The course is designed around four “perspectives”—Biblical, Historical, Cultural and Strategic. Each one highlights different aspects of God’s global purpose. The Biblical and Historical sections reveal why our confidence is based on the historic fact of God’s relentless work from the dawn of history until this day. The Cultural and Strategic sections underscore that we are in the midst of a costly, but very “do-able” task, confirming the Biblical and Historical hope.

▶ Python Programming (Fall Semester)

- Python is one of the most prominent and versatile programming language - suitable for applied programming, system utility programming, GUI programming, web programming, scientific and numeric programming, database programming, and etc. You can extend your python codes with C/C++ modules.
- Still as python provides simple grammar and structure, it is easy to learn and fast to develop codes.
- You will learn the basic and intermediate level of python programming in this course - input/output commands, variables, data types, list, conditional statements, loops, file I/O, simple graphic programming and window GUI programming.
- This course is designed to help students gain IT literacy, no matter what their major is, so that they can prepare the 4th industrial revolution and ICT convergence era. Students will be asked to register and watch MOOC to prepare and review lessons.

▶ Special Topics in Christian Studies (Fall Semester)

In Relationships God’s Way, we will discover how to develop and maintain relationships in a way that is pleasing and honoring to the Lord. In the first half of the semester we will explore a variety of important pre-marriage topics including singleness, courtship, and sexual purity. In the latter half of the semester, we will explore marriage topics including gender

roles, communication, conflict resolution, and parenting. We will be approaching these topics with a Biblical worldview exclusively. Students will wrestle through challenging concepts through readings, assignments and discussion in the duration of the course. Then to synthesize the course content, they will create their own personalized plans to seriously consider and strategize how they will apply this information to their own lives in their midterm and final papers. This course will be beneficial for any member of the body of Christ who wants to better conduct him or herself and counsel others in cultivating relationships God's way.

▶ **Web Programming (Fall Semester)**

This course was designed for students who want to learn the basic programming skills to make web pages. In the course, HTML (Hypertext Markup Language) and JavaScript will be used as main programming languages for web page production. The students will also learn about how to stylize their web pages using CSS (Cascading Style Sheets). The lecture will be given to deal with basic concepts together with corresponding programming practices during the class. It is expected that throughout the course the students will understand how web pages' work internally and cultivate abilities to computationally think of making web pages.