

# DESIGN & INNOVATION (DESN)

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## **DESN 210. Introduction to Programming for Business Applications. 3 Units.**

This course will introduce students to the basics of programming logic utilizing the Python programming language and environment. The course will help students understand how to apply programming solutions and related algorithmic thinking to solve common business and decision problems. This class is a great introduction into programming logic, it just happens to use Python. This course will teach the fundamentals of programming logic, which could be applied to any programming language available today or into the future. Learning Objectives: Upon completion of this course students should have a foundational knowledge of how to use variables, operators, manipulate strings, loops, functions, and basic array manipulation all through Python programming language. The course will culminate with a final project where students will be divided into groups with each group solving a different small business problem. The final submission will require a joint white paper submission that demonstrates the following learned objectives: problem research, scope, architect, and design a potential solution using python environment. A sample of the implemented Python code that was used to solve this problem will be required for final submission. Each student must have access to a computer that can be brought to class. No programming experience is required. Downloading and installing Python is covered at the start of the course. Basic computer skills: surfing websites, running programs, saving and opening documents, etc. Counts as a Quantitative Reasoning course.

## **DESN 302. Creativity in Design & Business: Sources of Perception, Imagination, & Creative Thinking. 3 Units.**

The goal of this course is to develop skills and techniques for creative problem solving. The course is for anyone interested in design, the development of new products and services, and strategies for change in organizations and society. It is useful wherever we face challenging situations that require imagination, new ideas, and innovative approaches in a rapidly changing world. At its core, creativity is an issue of perception. Learning to change one's perception from what is known, comfortable, and familiar to what is unknown and potentially valuable and rewarding is the challenge of this course. We will explore a wide variety of methods, techniques, and tools for encouraging new perceptions. There will be useful readings, but also exercises and projects for individuals and teams to develop new strategies of creative thinking. Offered as DESN 302 and ENTP 302.

## **DESN 308. Business Model Design and Innovation. 3 Units.**

This course takes the perspective of entrepreneurs or business unit managers. The three basic questions that all entrepreneurs and entrepreneurs must answer is where to play, how to win and what to do. You have identified a group of customers for your product or service (where to play). Your first challenge is to know what features (Customer Attributes) your target customer will pay for. Innovative business models focus on a set of customer attributes that are usually very different from other industry incumbents that we call Focal Attributes. Your second challenge is to clearly state your profit logic -- how you will make money -- how to win. The concept called Profit Objectives (similar but not the same as KPI and/or SMART objectives) allow you to operationalize the profit logic through specific and measurable deliverables. Your third challenge is building the value chain that can deliver these focal attributes (what to do). At this point, you have a good understanding of all the elements of your business model and in particular, how the focal attributes and the value chain align with the profit objectives. You will learn how to illustrate this alignment through a mapping process. Offered as DESN 308 and ENTP 308. Prereq: Junior standing or higher.

## **DESN 310. Systems Analysis and Design (SAD). 3 Units.**

This course begins with business analysis and ends with information systems design. Students are introduced to tools and techniques enabling effective analysis, design and documentation of an information system application. The student learns methodologies that form the basis of systems design and engineering practices. Models that focus on the articulation of business functions, integrating process, data and behavioral abstraction form the core of formal methods in systems development using the Unified Modeling Language (UML). The course teaches students principles and skills that are essential to their function as system developers, participants and leaders of system development projects. Prereq: MIDS 301 and (ENGR 131 or CSDS 132 or DESN 210).

## **DESN 320. Database Management. 3 Units.**

This course is a comprehensive introduction to data management in organizations. It establishes the data management foundation in the business major and can be taken as a course for students in data analytics. Topics include conceptual and logical data modeling, entity relationship and relational data modeling, and database design and implementation using the SQL programming language. Students will also be introduced with non relational data bases and big data applications. Students will complete exercises in database modeling, design and databased programming using SQL on a given data base environment to be determined later (Oracle, Open SQL etc). Prereq: ACCT 100 and (ENGR 131 or CSDS 132 or DESN 210).

**DESN 410. Leading Digital Innovation by Design. 3 Units.**

A new wave of digital revolution is transforming every industrial sector. Powered by increasingly smaller yet potent microprocessors and sensors, a new generation of analytical tools, and ubiquitous wearable and mobile devices, companies can radically transform the way they interact with users and the way they create and capture value. Technology like Block Chain and AI are likely to fundamentally reshape how we think about firms and industries. Such changes make existing strategic frameworks and tools obsolete. In order to understand how and why digital technology changes the industrial landscape, companies must understand some of the fundamental characteristics of digital technology and how it demands new types of value creation logic. Be it a large corporation or a small start-up; or a government agency or a multinational enterprise; everyone is struggling to deal with the new digital reality. Yet, exactly how to use digital technology to create value is not clear. While all companies must understand how digital technology is fundamentally different from other forms of technology, ironically digital innovation is not about technology. Digital innovation is making digital technology meaningful and value to users. Therefore, digital innovation requires us to truly understand us (people), what we do, why we do what we do, what makes us happy, and what we consider meaningful. Therefore, digital innovation is a deeply humanistic exploration to make digital technology meaningful and valuable to us. In order to fully harness the transformative capacity of digital technology, we must gain deeper insights on people and their actions, meanings and values. In this experiential course, we use design as the primary tool to gain such humanistic insights, and work with real-world projects to apply those ideas and tools to build real digital innovations.

**DESN 419. Entrepreneurship and The Good Life. 3 Units.**

Entrepreneurship and business ownership is how most wealth is created. Pursuing the "Good Life", when done effectively, leads to wealth and fulfillment. Wealth, like happiness & fulfillment, is not to be pursued directly, it ensues as a result of living a life of positive impact for others. We will explore two primary entrepreneurial strategies used to create value for others, Entrepreneurship Through Acquisition and Real Estate as attractive alternatives to Startups (traditionally equated with "entrepreneurship"). We will explore these topics with real entrepreneur guests who will share their experience and strategies with the class. This course employs an active learning approach, based on the belief that the best way to learn is through a progression of real world insights rather than a list of policies and practices delivered via long lectures. Offered as DESN 419 and MGTE 419.

**DESN 420. Entrepreneurship through Acquisition. 3 Units.**

Entrepreneurship through Acquisition (ETA) is the path to becoming an entrepreneur by buying and growing an established small business. Most ETA strategies incorporate support of investors and advisors who provide capital and experience to help and mentor an ETA entrepreneur on their journey to find, acquire, and lead a small business.

**DESN 421. Entrepreneurship through Acquisition II. 1.5 Unit.**

Entrepreneurship Through Acquisition ("ETA") will give students frameworks and real-world solutions to use if they decide to pursue the acquisition and leadership of a company. The class will walk through the life cycle of a typical path to finding and running a business, including information on raising capital, searching for a company, buying a business, leading that business and then ultimately selling it. Approximately half of the course will go through critical points leading up to buying a business, while the other half will address some of the key issues executives face while running a company (identifying metrics, communicating with a team, interviewing, handling HR issues, etc.). Although the main focus will be on buying and running a business, the class is designed to be applicable to many other career paths including private equity, venture capital, entrepreneurship and general management. The class will utilize cases, assignments and / or readings in each lecture along with speakers who will give real life techniques that they use to excel in the particular area that the class is structured around. The class will be a mix of Zoom and recorded instruction.

**DESN 425. Chief Executive Officer. 3 Units.**

This course will take the perspective of the CEO in deciding the actions that lead to sustainable competitive advantage. We will study decisions that span from starting a small business to expanding beyond the core using mergers and acquisitions. We will also study how CEOs decide to exit a market. The successful CEO not only has to design the strategy for success but has to also design an execution plan. As the organization grows the importance of delegation to the right subordinates becomes increasingly critical. The course material includes case studies, decision briefs and presentations (virtual and in person) by senior executives. Decision briefs are short notes that have the same information that the CEOs had when starting the business. You will develop the strategy based on these decision briefs and will compare your suggestions to what was actually done by both successful and unsuccessful CEOs. Offered as DESN 425 and MGTE 424.

**DESN 440. Design of Disruptive Business Models. 3 Units.**

This course will explore the design of business models that disrupt traditional or established business patterns. With the shift toward services and human interactions as the foundation of many new companies, this course will focus on methods of inventing and developing business models that use digital technology, information, and service concepts to meet new needs in areas of retail, medical care, and other areas of business opportunity.

**DESN 490. Business Model Innovation. 3 Units.**

We will take the perspective of the business unit or an entrepreneur starting a business. The course will be built around defining the following as problems. Where to play, how to win and what to do. We will deconstruct many innovative business models. However, the learning objective for you is to understand a process by which you can design (reconstruct) similar innovative business models. The process of identifying a creative outcome is essentially a search task, equivalent to find valuable treasures in an unexplored space. One can find treasure by walking around randomly or following a well thought out search algorithm. The latter, however, is much more efficient, guarantees much higher payoff in the long term, and can be learned and replicated by any willing explorers. Example in Fossil Hunting.

**DESN 491. Expansion and Diversification Strategy. 3 Units.**

This course will help you to internalize a few core principles required to compete successfully, as well as to successfully expand a business.

These core principles can be applied in any business – past and present. What will change is the MEANS of applying these principles as technologies change. So the smartphone is gradually eliminating the need for a dispatcher to connect a passenger to a taxi. However, the business that can match supply and demand better than competition will win irrespective of the means.

**DESN 494. Managerial Consultancy. 3 Units.**

Students will learn to match consulting methodologies with client needs and employ a step by step strategy development process applied to actual companies which are semester-long clients of the class.

Accelerated career strategies in the consultancy business are featured as well as tactics for getting hired in the first place. The course views consultancy as a role rather than career and conceptualizes consultancy as a process of optimizing an organization's value creation potential and competitive advantage. Students should be able to apply the concepts regardless of career choice. Exposure to senior practicing consultants is featured.

**DESN 501. Special Problems and Topics. 1 - 18 Units.**

This course is offered, with permission, to students undertaking reading in a field of special interest.

**DESN 527. Seminar in DESN. 3 Units.**

This seminar addresses topics of current interest with a strong emphasis on research. It is intended primarily for the faculty and doctoral students of the DESN Department.

**DESN 601. Special Topics in MIS. 1 - 18 Units.**

This course is offered, with permission, to Ph.D. candidates undertaking reading in a field of special interest.

**DESN 701. Dissertation Ph.D.. 1 - 9 Units.**

(Credit as arranged.) Prereq: Predoctoral research consent or advanced to Ph.D. candidacy milestone.