

To complete this course you will need to access the resources in your online course.

DePaul University, School for New Learning Online Course Syllabus

Course Name: Development of Products and Services

Competences: H-2-C, S-1-E, F-X

Credit hours: May be taken for up to 4 credit hours, 11 weeks

Course Description

The design of new products and services that exceed customer expectations with quality is a key competitive advantage in today's markets. The course *Development of Products and Services* will provide students with an overview of the Total Design Process Methodology, as well as an introduction to tools and techniques that enable the integration of marketing, design and other supply chain elements to develop successful projects. Students will apply the tools and ideas described in the course in the generation of a consumer product or service concept that will be developed throughout the term

Course Competences

In this course, you will develop the following competences:

Competence	Competence Statement
H-2-C	Can identify an organizational problem and design a plan for change based on an understanding of social science theories or models
F-X	Understands the tools and techniques used for the design and development of new products and services that will consistently satisfy customer requirements
S-1-E	Can analyze inventions or technologies and can understand their underlying scientific principles. <ol style="list-style-type: none">1. Describes a complex invention or technology in terms of its component parts and functions.2. Analyzes the parts and functions in terms of scientific principles

How the Competences will be Demonstrated in this Course

The H-2-C competency will be demonstrated by completing a competency paper in which an opportunity for improvement is identified in a product or service development oriented organization. The concepts outlined on the "Total Design" methodology will then be used to develop a plan of activities to address the problem.

The F-X competency will be demonstrated by completing a competency paper in which students will reflect on their experience on the design or redesign of products and/or services and describe how they would approach the problem differently after having covered the course contents.

The S-1-E competency will be demonstrated by completing a competency paper in which the principles of functional decomposition will be used to analyze a physical product by associating each function to the physical principle used for implementation. Product innovation opportunities will be explored through application of alternative physical principles.

Course Learning Goals

After completing this course, you will be able to:

Apply the Total Design Methodology for New Products and Services

- Capture and categorize Customer Requirements which will be translated into design attributes used to evaluate the design of a new product or service
- Describe the structure of the Quality Function Deployment first matrix to identify critical design attributes and their associated performance standards
- Transform the Product/Service Attribute information into a functional diagram
- Generate multiple design concepts, evaluate them and create additional ones by going through several iterations using the Pugh Concept Selection method.
- Develop the selected design concept into lower level components for detailed design. Generate design alternatives associated with each component
- Construct detailed design specifications for each component as well as for the final design solution
- Describe the activities that the team needs to complete on the implementation stage of the development project, including outsourcing of components as appropriate

Course Structure

This course consists of ten modules. The estimated time to complete each module is one week. The following table outlines the course:

Course Map

Module and Week	Module Theme	Learning Activities	Assignment (Due at the end of the week)
One	Introduction	Module 1 Readings & Course Slides	Introductions
Two	Overview of the Design Process	Module 2 Readings & Course Slides Create Project Proposal	Submit project proposal

Module and Week	Module Theme	Learning Activities	Assignment (Due at the end of the week)
Three	Identification of Customer Needs	Module 3 Readings, & Course Slides Gather customer requirements	Team Organization Submit hierarchy of customer requirements
Four	Design Attributes, Design Specifications & Performance Standards	Module 4 Readings & Course Slides Determine Design attributes, relative importance and boundaries	Complete QFD House 1 Document final design specifications
Five	Generation of Design Concepts	Module 5 Readings & Course Slides Create a FAST Diagram Identify key functions for differentiation Generate 5 design concepts	Develop functional decomposition Generate and document potential design concepts
Six	Concept Selection	Module 6 Readings & Course Slides Screen concepts using the Pugh Method	Identify concept(s) for further development
Seven	Detailed design - Generation of Design Alternatives	Module 7 Readings & Course Slides Identify key functions for differentiation and related components Generate design alternatives for critical components	Document and submit design alternatives for critical components
Eight	Detailed Design - Evaluation and testing of Alternatives	Module 8 Readings & Course Slides Document final design specifications for critical components Outline a testing plan	Create Design specifications for critical components Testing plan

Module and Week	Module Theme	Learning Activities	Assignment (Due at the end of the week)
Nine	Component Outsourcing: Make-Buy Decision Process	Module 9 Readings & Course Slides	Product/Service Architecture Final design submission
Ten	Design Implementation and Assessment of Customer Satisfaction	Module 10 Readings & Course Slides	Project Implementation Plan

Note: For exact dates of module time frames and assignment due dates, consult the course Web Board discussion forum.

Course Resources

Required textbook(s): There are three primary documents associated with this course:

The course Study Guide, the course books and the course reference materials.

Study Guide – You will download the “Development of Products and Services” Study Guide from your online course. Use this guide for the course and Module introductions and to find out expectations for assignments and grading.

Book: Design and Management of Service Processes by Rohit Ramaswamy, (Addison Wesley 1996) Course Books – These are published books that will guide your learning experience.

This course textbook contains most of the theory covered in the course as well as many relevant case studies and Service related examples.

Book: *Product Design and Development* by Karl T. Ulrich and Steven D. Eppinger (McGraw-Hill 2004).

This reference book complements the material by focusing on the Design and Development of new Products. The reference book is highly recommended specially for students with interest in Products vs. Services.

Course reference materials – These can be found in the “Resources” section of the course web site. You will find a PowerPoint file in PDF form for each Module, as well as additional references. Please note that it is very important to refer to these presentations for every module since they are an integral part of the discussions.

Paper – “Is the Make-Buy Decision Process a Core Competency?” Charles E. Fine, Daniel E. Whitney, MIT Center for Technology, Policy and Industrial Development, February 1996.

URL:

http://www.hbs.edu/units/tom/seminars04-05/fine-3-a-Make_Buy_Core_Comp.pdf

Course assignments

Instructions for each assignment may be found within each module description.

Assessment of Learning

Assessment Criteria for each Competence

H-2-C: Can identify an organizational problem and design a plan for change based on an understanding of social science theories or models.

If you are taking this course for the H-2-C competency, you will demonstrate the competency through submission of all required course assignments as well as online interactive discussions with the instructor and other participants. You will also demonstrate this competency by applying the “Total Design” methodology learned in class to address a problem in a product or service development oriented organization. You will write a 3-4 page essay describing a plan of activities recommended to solve the problem. This paper is due one week after the final Module (Module 10)

F-X: Understands the tools and techniques used for the design and development of new products and services that will consistently satisfy customer requirements

If you are taking this course for the F-X competency, you will demonstrate the competency through submission of all required course assignments as well as online interactive discussions with the instructor and other participants. You will also demonstrate this competency by identifying areas of opportunity for implementation on a practical situation to improve an existing product or process. You will write a 3-4 page essay describing the opportunity for improvement and the recommended tools to solve the problem. This paper is due one week after the final Module (Module 10)

S-1-E: Can analyze inventions or technologies and can understand their underlying scientific principles.

1. Describes a complex invention or technology in terms of its component parts and functions.
2. Analyzes the parts and functions in terms of scientific principles.

If you are taking this course for the S-1-E competency, you will demonstrate the competency through submission of all required course assignments as well as online interactive discussions with the instructor and other participants. You will also demonstrate this competency by developing a functional decomposition of a product selected with the approval of your instructor. After the functional analysis is complete, you will then describe the physical principles implemented for each

function, followed by a discussion on alternative principles that could have been utilized to implement two key functions of your choosing. This paper is due one week after the final Module (Module 10)

The following are criteria for receiving a passing grade:

- You participate consistently and constructively in the online class discussion forums.
- You complete all readings, project, and writing assignments by their due dates.
- You actively participate in all project activities
- You submit your final paper competency papers by the due date.

General Assessment Criteria for Writing Assignments

- General criteria for evaluation of written work (papers and project exercises)
- Completeness. Make sure to address all points specifically described on the assignment.
- Logical structure. Make sure your argument is coherent from beginning to end and supported by data as required on the assignment
- Be concise. Use the templates provided in class as much as possible.

It is important that your final paper:

- Demonstrates that you can apply the principles of Total Design covered on his course to evaluate your past and present experiences in the design and development of products and services.
- Organizes your supportive evidence and examples into relevant paragraphs that address your subject.
- Contains proper APA or MLA citation form for in-text references as well as for bibliography as appropriate.

Projects

Your challenge in the project portion of this course is to develop the concept of a new product or service. The goal of this exercise is to learn principles and methods of product and service development. Guidelines for reasonable projects are given below. The project proposal process is explained in the Module 2 section of this syllabus.

Guidelines for Projects

While special cases will be considered, you are strongly encouraged to choose a project satisfying all of the following constraints:

- There should be a demonstrable market for the product or service. One good way to verify a market need is to identify existing products or services that attempt to meet the need. Your idea should not necessarily be a variant of an existing product or service, but the market need should be clearly evident. The product or service does not need to have a tremendous economic potential, but

should at least be an attractive opportunity for an established firm with related interests and/or skills.

- It is recommended that projects developed in this class relate to either material goods and service endeavors. While many of the ideas in the course apply to software products (for example, customer needs and product architecture), it is recommended that IT and software project are considered to be outside the scope of this course.
- Product concepts should have a high likelihood of containing fewer than 10 parts. Although you cannot anticipate the design details, it is easy to anticipate that an electric drill will have more than 10 parts and that a manual press to squeeze oranges can have fewer than 10.
- If a Service project is chosen, it should be possible to represent its implementation with fewer than 20 process steps.
- Given the remote nature of the course, physical product prototypes will not be required although graphical representations of the concept solution are expected.
- You should have access to at least five potential users of the product or service. This input will be added to the feedback received from class colleagues.

A few more hints:

- Most successful projects are a result of strong personal interest in the target market.
- Many products and services are really not optimally designed. The experience in this class is that if you pick almost any product or service satisfying the above project guidelines, you will be able to develop one that is superior to everything currently on the market.
- Just because you have used a lousy product or suffered a bad service experience doesn't mean that a better one doesn't exist. Do some thorough research to identify competitive products and solutions.

Project Schedule

All assignments must be submitted at the end of the Module in which they are due. Note that these assignments are intended to pace the development process for your product or service. There is virtually no slack in this schedule and so assignments must be completed on or before the scheduled due date in order to maintain the project schedule.

- This is not an independent study course, but a paced online group learning experience. This study guide indicates 6 to 11 hours per week of your time to be spent on this course of ten weeks.
- Please accept the challenge to work with others, to construct knowledge in negotiation with others. Working individually on the assignments and just posting them might not lead to significant knowledge and skills.

Some difficulties at the beginning of an online course are quite normal, solving them is part of every distance learning experience.

Course Grading Scale

A = 95 to 100	A- = 91 to 94	B+ = 88 to 90
B = 85 to 87	B- = 81 to 84	C+ = 77 to 80
C = 73 to 76	C- = 69 to 72	D+ = 65 to 68
D = 61 to 64	F = 60 or below	INC

For SNL courses taken for Pass/Fail, a "Pass" represents a grade of "A" for purposes of financial aid and employer reimbursement.

Percent distribution of assignments

Participation in the course discussion board	30%
Weekly assignments	50%
Competency papers	10%
Timeliness	10%

Online Discussion

Online Participation Guidelines for this course

- A significant part of your online learning experience involves learning *with* and *from* your classmates and the facilitator in the online discussions and group assignments.
- Active participation means sharing information and resources and posting your ideas and critiquing and expanding on the ideas of others in a collegial fashion. This discussion is informal in the sense that it is meant to encourage interested discussion. You are expected to follow accepted standards of English spelling, grammar and usage, although you will not be assessed for these particular characteristics when you are participating in the WebBoard discussions.
- These discussions are for you to exchange your reflections with your classmates and facilitator about what you are learning. The discussions will be organized into forums around the particular topic you are studying each week.
- You should contribute your responses to the particular assignment for that particular discussion heading which will be posted.
- For each Discussion Conference, you are required to make at least one original contribution to each topic and respond to one classmate's contribution.

Assessment Criteria for Online Discussion Participation

You are expected to actively participate in online discussions with your classmates and the instructor every week. "Active participation" means that you read and contribute to

the online discussions. This discussion is “informal” in the sense that it is meant to encourage interested discussion. It is expected that you follow accepted standards of English spelling, grammar and usage, although you will not be assessed for these particular characteristics when you are on the discussion board. These discussions are a place for you to exchange your reflections with the others in the class about what you are learning. The discussions will be organized into forums around the particular Modules you are studying each week. Please note that Module participation is limited to the week in which the material is being covered. Late participation will not be credited. Please note that Modules are open for participation only during the week in which the topic is being discussed in class.

You should contribute your responses to the particular assignment for that particular discussion heading which will be posted. Directions are provided with each assignment. They must be followed according to the due dates given. Principles of good practice for participating in online discussions should be adhered to when it comes to responding to the contributions of other people in the class.

In the online discussions you are moving the discussion along if you are:

1. Offering up ideas or resources and inviting a critique of them
2. Asking challenging questions
3. Articulating, explaining and supporting positions on ideas
4. Exploring and supporting issues by adding explanations and examples
5. Reflecting on and re-evaluating personal opinions
6. Offering a critique, challenging, discussing and expanding ideas of others
7. Negotiating interpretations, definitions and meanings
8. Summarizing previous contributions and asking the next question
9. Proposing actions based on ideas that have been developed

The above list was adapted from Gilly Simpson’s book *E-Moderating: The key to teaching and learning online*. London: Kogan Page: p.143 (2000).

Additional Information

Time Management and Attendance

SNL’s online courses are **not** self-paced and require a regular time commitment EACH week throughout the quarter.

You are required to log in to your course at least **FOUR** times a week so that you can participate in the ongoing course discussions.

Online courses are no less time consuming than "face to face" courses. You will have to dedicate some time every day or at least every second day to your studies. A typical four credit hour "face to face" course at SNL involves three hours of classroom meeting per week, plus at least three to six hours of study and homework per week.

This course will require at least the same time commitment, but your learning activities will be spread out through the week. If you have any problems with your technology, or if you need to improve your reading or writing skills, it may take even longer:

The facilitator should be notified if your life events do not allow you to participate in the course and the online discussions for more than one week. This is particularly important when there are group discussions or you are working as part of a team.

If you find yourself getting behind, please contact your course facilitator immediately.

Academic Integrity

All members of the DePaul community are bound by the University's guidelines on academic integrity found in the Student Handbook at (<http://studentaffairs.depaul.edu/handbook/code16.html>). The Handbook's definition of plagiarism is as follows

Plagiarism: Plagiarism is a major form of academic dishonesty involving the presentation of the work of another as one's own. Plagiarism includes but is not limited to the following:

- The direct copying of any source, such as written and verbal material, computer files, audio disks, video programs or musical scores, whether published or unpublished, in whole or part, without proper acknowledgement that it is someone else's.
- Copying of any source in whole or part with only minor changes in wording or syntax, even with acknowledgement.
- Submitting as one's own work a report, examination paper, computer file, lab report or other assignment that has been prepared by someone else. This includes research papers purchased from any other person or agency.
- The paraphrasing of another's work or ideas without proper acknowledgement.

Plagiarism, like other forms of academic dishonesty, is always a serious matter. If a facilitator finds that a student has plagiarized, the appropriate penalty is at the facilitator's discretion. Actions taken by the facilitator do not preclude the college or the university from taking further punitive action including dismissal from the university.

Your Facilitator's Role

Your facilitator's role in this course is that of a discussion facilitator and learning advisor. It is not their responsibility to make sure you log in regularly and submit your assignments. As facilitator, s/he will read all postings to the general discussion forums on a daily basis but may not choose to respond to each posting. You will receive feedback to assignments posted to your personal conferences in your personal conferences, or delivered to you by your facilitator via email.

The facilitator may choose to designate "office hours" when s/he will be online and available and will immediately respond to questions. Depending on the facilitator, this

response may be by e-mail, instant messenger or telephone. Otherwise, you will generally receive a response to emailed or posted queries within 48 hours.

Your Role as a Student

As an online student, you will be taking a proactive approach to your learning. As the course facilitator's role is that of a learning guide, your role is that of the leader in your own learning.

You will be managing your own time so that you can complete the readings, activities and assignments for the course, and you will also be expected to take a more active role in peer learning.

You will learn with and from your classmates in the online discussions and group assignments, sharing information and resources and posting your ideas and critiquing and expanding on the ideas of others in a collegial fashion. You are encouraged to bring your questions to the online discussions and respond to each other—do not always wait for the facilitator to answer questions.

If events arise in your life that will prevent your attendance in class for one week or more, it is your responsibility to make sure that your instructor is advised at the first possible opportunity. You, or a friend or family member can do that by email, postal mail or phone. Someone could also send a note to snlonline@depaul.edu, or call either of the CDE contact numbers listed on page 1 of this guide. This will allow your instructor to assist you to make up missing work. If these events occur early in the quarter and you wait until the end of the quarter before informing your instructor, do not expect to receive an Incomplete.

Pass/Fail Grades

Required courses in the Lifelong Learning area must be taken Pass or Fail (Exception: L6 and L7 can be either letter graded or Pass/Fail). Other SNL courses can be taken for letter grades or Pass/Fail. You must declare to the instructor which grading type you seek by the 2nd week of class. Once made, this decision cannot be changed.

Incomplete Grades

The intent of the Incomplete grade is to allow students extra time to complete their final assignments. This need arises because, in the closing weeks of the course, they have an event of significant magnitude (think "Hurricane Katrina") adversely impact their ability to complete the course,

You must request an incomplete grade in writing two weeks before the end of the quarter. Incomplete grades will be considered only after you have *satisfactorily* completed at least 75 percent of the coursework, and you have an event of "Katrina" magnitude that prevents you from completing your course. Do not assume that you will qualify for an incomplete. Students who are failing the course at the point where they request an incomplete will not receive one, nor will they be granted after the end of the quarter. Incomplete grades are given at the discretion of the instructor.

If you do receive permission from the facilitator to take an incomplete in the course, you will be required to complete a contract with the facilitator, specifying how you will finish

the missing work within the next two quarters. Incompletes not finished by the end of the second quarter will automatically become an F grade on your transcript.

Final Note

Participating in SNL courses can be an enriching, rewarding experience, and a chance to share ideas in a safe environment.

Some difficulties at the beginning of an online course are quite normal; solving them is part of every distance learning experience.

Enjoy the journey into lifelong learning!