Southern New Hampshire University
Syllabus

IT.304: Systems requirements and implementation planning

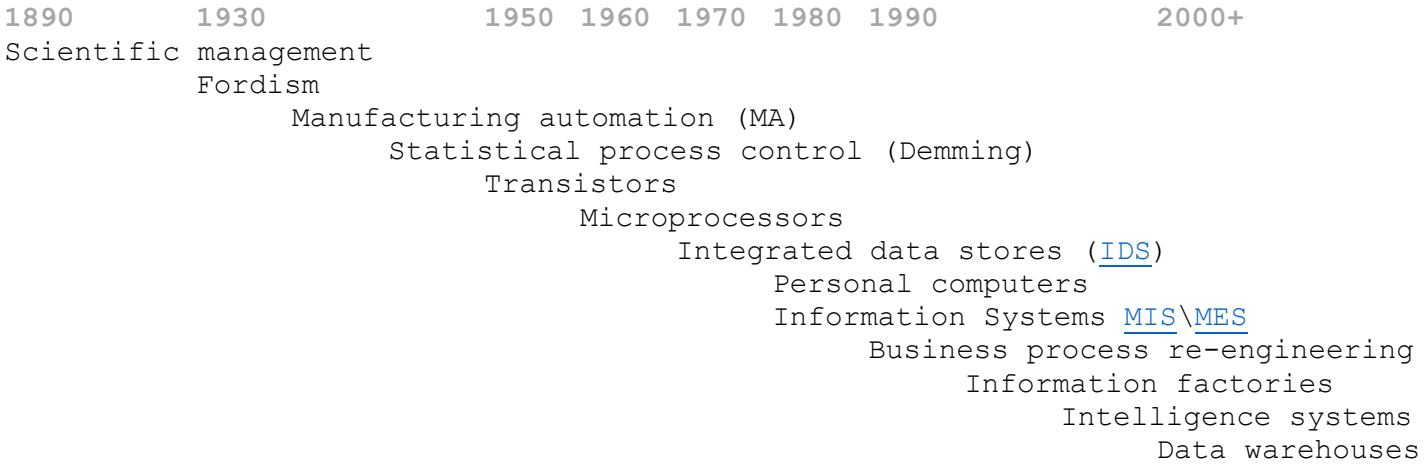
Instructor: brian hogan, b.hogan@snhu.edu, https://github.com/bbe2/IT.304-Fall-2022

Location: on-ground, SETA, 209, Wednesday and Friday at 11:00 – 12:15

Course Prerequisites: IT.200, QSO.340

Course Description

Systems analysis and design is an art form, discipline, and science, and it has a deep history dating back to the 1890s, forming the salient pillars of speed, quality, and control.



To perform systems analysis and design it helps to understand different models, what operation managers *need* to see happening, what business leaders *want* to achieve, and what financiers *insist* as necessary to ensure an ongoing concern.

In the 1990s, MIT computer science professor Michael Hammer developed the management theory of business process re-engineering (BPS) focused on process improvement, process re-design, and process re-engineering, emphasizing a holistic focus on business objectives and how processes relate to them. The theoretical work still has legs today, as witnessed by IBM's Business Process Reengineering <IBM-BPRS> and Bain & Company's Business Process Redesign <Bain>. Names change, such as Accenture's Human + machine intelligence, but systems analysis and design principles are fundamental.

Business requirements, business rules, system specifications, environmental factors, technology (personal and corporate), people, skills, and methods change. Such change provides opportunities to tear things apart, reorganize, recodify, and demonstrate to business constituents and customers the right effort to maintain viability.

Skill achievement in this arena derives from selecting models to frame systems and applying them to business process engineering swim lanes, IDEF0, object models, and others as detailed. Competency is determined based on the quality of system abstraction necessary to institute meaningful change. Students will be able to focus on models that work MOST interest and are meaningful to their future goals.

This course will develop skills to perform systems analysis and design as evidenced by:

1. Written examination and diagnostics of systems thinking.
2. Use of information modeling to draft system requirements.
3. Use of data and object model programming to codify information systems.

Tools and technologies to facilitate evidence formation include,

1. Document and spreadsheet software such as MS Word \ MS-Excel.
2. Microsoft Visio (required).
3. Apply systems analysis and design principles by translating business and information structures into object models, systems requirement specifications, and.or implementation plans.
4. Case studies.

Course competencies:

- IT-20358: Make ethically informed decisions based on awareness of legal and organization parameters
- IT-20359: Develop a systems requirements specification
- IT-30360: Develop an implementation plan

Required textbooks:

Resources are critical to success in this course, and information is gathered from various sources to minimize personal learning costs. Towards this end, the instructor provides online references to the extent possible and only recommends materials with constant learning value. When applicable, consider acquiring materials from the SNHU Online Bookstore.

The following textbook is well suited for class purposes. Class.1 and Class.2 will guide a course of action for purchase or rental of Scott Tilley book.

Tilley, Scott (2022). **Systems analysis and design, 12th Edition**. Shelley Cashman Series. Cengage. Published 2022. ISBN 978-0-357-11781-1.

- https://www.amazon.com/s?k=systems+analysis+and+design+12th+edition+scott+tilley&crid=3MA5XRRHG2KMB&sprefix=systems+analysis+%2Caps%2C82&ref=nb_sb_ss_ts-doa-p_2_17

Models come in all shapes and sizes. Weekly sidebar exercises incorporate ideas from The Decision Book. Students are encouraged to purchase this work.

Krogerus, M., Tschappeler, R., and Pienning, J. (2018). **The decision book: fifty models for strategic thinking**. ISBN-10: 0393652378, ISBM-13, 978-0393652376.

- Amazon.com: The Decision Book: Fifty Models for Strategic Thinking: 9780393652376: Krogerus, Mikael, Tschäppeler, Roman, Piening, Jenny: Books

Tools and technologies to facilitate evidence:

1. Document and spreadsheet software such as MS Word \ MS-Excel.
2. Microsoft Visio.
    1. Visio is required unless there is strong evidence for similar software discussed with the instructor. Translation ability to Adobe pdf **required**.
    2. At a minimum, any other software must be able to generate Adobe pdf.
3. Case studies (provided weekly).
4. Topic discussion and question and answer (Q&A) blogs via slack, blackboard, or a student recommended, and class agreed on preference.

Required software:

- Document and spreadsheet processing software.
- Microsoft VISIO (available through university here)
- Python
    - Best place to start = jupyter notebook classic home
    - Jupyter :: Anaconda.org

Instructor availability and response time

- Interaction with the instructor and classmates will occur regularly on Wednesdays and Fridays at 11:00 in room 209 SETA building.
- The instructor can be available before and after class from 8 AM till approximately 3 PM for in person discussion. Please request a day ahead.
- Communications will typically occur during class for the benefit of everyone. If the class agrees can record lectures as a video backup.
- The class will use either slack or blackboard for discussion blogging.
- Please feel free to communicate with your instructor via b.hogan@snhu.edu at any time and for any topic.
- Grades and feedback are within seven days of a submitted assignment.

Grading Guides

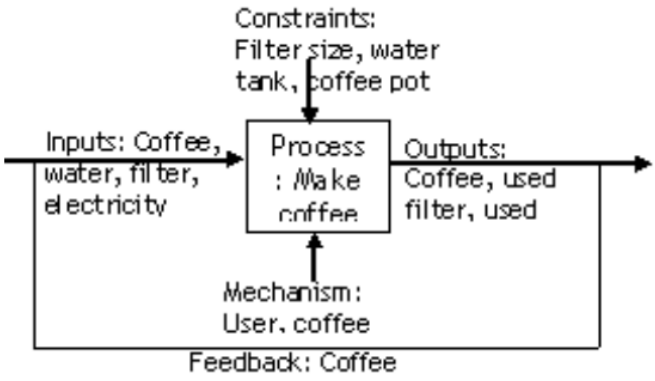
Specific activity directions, grading guides, posting requirements, and additional deadlines are provided in assignment information.

Weekly Assignment Schedule

Reading assignments, activities, and tasks are distributed during the first class each week on Wed except for the first week. Please reach out to the instructor for students interested in doing work ahead of schedule.

The coursework is challenging, accessible, and extremely useful. As such, the expectation is that work progresses naturally in an ongoing fashion with self-interest and self-motivation guiding your participation and creativity of desired outcomes.

Assignments are due the **day** they are due per the world's clock. If it is still December 31st "somewhere," your work is not late.

Week	Media Type/Focus	Topics & Assignments
1	Reading Podcast / Video What is business process re-engineering? **Run videos at speed 1.25** What is a system? **inputs** **outputs** **resources** **constraints** IDEF0 Handout **Assignment Request for 9/1** Assignment Example page Assignment example.	Tilley, ch 1. Intro to Systems Analysis (free link) • 1st chapter is FREE !, use above link • Awareness & Design – Michael Hammer o https://www.youtube.com/watch?v=9oxM5JV7H50 • Business Process Re-engineering explained - o https://www.youtube.com/watch?v=v-jAf7L2Uak o (10.5min/1.25=8.4min) • IBM Business process Analysis (6.5min/1.25=5.2min) o https://www.youtube.com/watch?v=1E6II2U1shY Utilize your abstraction instinct while reading because the name "EMS" isn't important, but the concepts are. https://www.niu.edu/ems/introduction/definition.html 1) definition is page 1 + 8 more pages using <next topic> 2) The EMS model 3) Benefits of EMS 4) Examples of EMS 5) Systems approach 6) Concept diagram <focus and perform abstraction here> 7) Processes, inputs, outputs a. Example of: inputs, outputs, resources, constraints 8) Summary • IDEFØ – Function Modeling Method – IDEF o 2nd example of input, output, res., constraint Select a process you love or dislike. Define its input, outputs, resources, and constraints (IORC). Logically what goes into the system is either consumed or comes out. Notate ALL you think of. Then, list 5 to 10 high-level activities performed by the IORC. Use paper and pencil and send me a picture **anytime** end of the day tomorrow. I am only asking for a max of 15 min to whip up. Please spend more if having fun. Thank you for considering this fast turnaround, as I will use all work submitted to start Friday's lecture. Perform work as a team as desired or convenient. https://www.niu.edu/ems/introduction/constraints.html 

Week	Media Type/Focus	Topics & Assignments
1 day2	Reading Podcast / Video **Run videos at speed 1.25** **Assignment Request for 9/7**	**Tilley, Ch2, Ch5** **Python training video** Install software Microsoft VISIO (available through university here) • Python o Best place to start = jupyter notebook classic home o Jupyter :: Anaconda.org

Grade distribution*

Assignment category	# items	Points	Total points
Discussions	5	30	150
Quiz	8	25	200
Activities	5	50	250
Project 1	1	250	250
Project 2	1	150	150
		Total	1000

*based on class experience and expectations may be revised by 2nd Wednesday of week 2

University grading system

Grade	Numerical Equivalent	Points
A	93-100	4
A-	90-92	3.67
B+	87-89	3.33
B	83-86	3
B-	80-82	2.67
C+	77-79	2.33
C	73-76	2
C-	70-72	1.67
D+	67-69	1.33
D	60-66	1
F	0-59	0
I	Incomplete	
IF	Incomplete/Failure	
IP	In progress	
W	Withdrawn	