Northeastern
College of Engineering

INFO7260 - BUSINESS PROCESS ENGINEERING SYLLABUS

FALL 2025

Course Information
Course Title: Business Process Engineering I
Course Number: 7260
Term and Year: FALL 2025
Credit Hour: 4
CRN: INFO7260 17718 Business Process Engineering SEC 01
Course Format: Live, On Ground

Instructor Information
Full Name: Shannon Pettiford
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Office Hours: By appointment via email

Instructor Biography
Shannon Pettiford, M.S., PMP, PMI-ACP is a seasoned professional with expertise in program and project management, business process improvement, and operations management. His career spans decades, managing global projects and programs are focused on digital marketing, information technology, human resources, finance, and strategic initiatives. He is a member of the Project Management Institute (PMI.org) and holds the Project Management Professional (PMP), Agile Certified Practitioner (PMI-ACP), and Certified Scrum Master (CSM) certifications. He obtained his undergraduate degree in Computer Science from East Tennessee State University and earned his master's degree in Project Management from Northeastern University, with a concentration in program and portfolio management. His continued research focuses on risk management, business process development, strategic initiatives, and business relationship management. Mr. Pettiford's career spans various positions in the information technology field as a web developer, software programmer, systems analyst, and business analyst. His experience working in cross-functioning roles in Fortune 500 organizations provides him with keen insights and lessons learned in finance, information technology, marketing, and logistics. He works full-time at Boston Consulting Group as an IT Program Manager focused on office expansions, M&A, business acquisitions, and business engagement models globally. With a successful track record in program and project management, Mr. Pettiford delivers on organizational performance improvement, cost reduction methodologies, and business transformation. Mr. Pettiford also teaches graduate-level courses in project management at Northeastern University, the University of Kansas, and the Harvard Extension School.Please insert a brief instructor biography here.

Course Prerequisites
Please review the academic catalog to identify any course prerequisites

Course Description
Business Process Engineering is an entry-level course designed to introduce students to the principles, methods, and tools for analyzing, modeling, and improving organizational processes. Students will learn to identify and address process breakdowns that lead to misaligned goals, miscommunication, higher costs, and employee dissatisfaction. Beginning with the fundamentals of process mapping, participants will gain hands-on experience creating current-state ("as-is") and future-state ("to-be") models using industry-standard techniques such as flowcharts, swimlane diagrams, and Business Process Model & Notation (BPMN).

The course emphasizes the importance of optimizing processes before automation, reinforcing the critical role of business analysts in aligning technology solutions with organizational needs. Building on this foundation, students will explore human-centered innovation through Design Thinking, practicing empathy mapping, problem framing, ideation, prototyping, and iterative solution testing to create impactful solutions. In addition, the course provides a comparative study of project management methodologies. Through practical exercises in project planning, risk management, and sprint-based workflows, students will understand how structured project management supports successful process implementation.

Case studies and real-world examples will guide students in diagnosing inefficiencies, analyzing bottlenecks, and applying Lean principles to recommend practical improvements. Team-based assignments will build collaboration skills while teaching students how to communicate process changes effectively and secure stakeholder "buy-in." This blend of analytical, creative, and managerial skills prepares students to lead meaningful process improvement and reengineering initiatives that align with organizational strategy and deliver sustainable results.

Learning Outcomes

1. Analyze and model business processes using techniques such as flowcharts, swimlane diagrams, and BPMN to identify inefficiencies and bottlenecks.

2. Apply Lean principles and process reengineering methods to recommend sustainable, value-driven improvements aligned with organizational goals.

3. Utilize Design Thinking frameworks—including empathy mapping, ideation, prototyping, and iterative testing—to develop human-centered solutions.

4. Compare and implement project management methodologies (Waterfall and Agile) to support the planning and execution of process improvement initiatives.

5. Communicate process changes effectively to technical and non-technical stakeholders to gain buy-in and ensure successful implementation.

Required Tools and Course Textbooks
The following texts are ***REQUIRED***:

- **Fundamentals of Business Process Management** – Dumas, M., La Rosa, M., Mendling, J., & Reijers, H.A. (ISBN: 978-3-662-56509-4)

- **This is Service Design Doing: Applying Service Design Thinking in the Real World** – Stickdorn, M., Hormess, M.E., Lawrence, A., & Schneider, J. (ISBN: 978-1-491-92718-2)

Supplemental Readings

Additional readings will be provided within Canvas.

Software & Related Equipment

- Adobe Reader
- MS Word (or equivalent)
- MS Excel (or equivalent)
- MS PowerPoint (or equivalent)

Course Schedule/Topics Covered

Week	Lecture topic	Fundamentals of Business Process Management Chapters	This is Service Design Doing: Applying Service Design Thinking in the Real World - Chapters
Week 1	Introduction to Business Processes	Ch. 1: What is a business process, types of processes, BPM lifecycle phases, strategic alignment Ch. 2: Process architecture, identifying processes, value-adding vs non-value-adding activities Ch. 12: BPM maturity, organizational integration of BPM, capability models	Ch. 1: Why service design matters, practical context Ch. 2: Principles of service design thinking (human-centered, co-creative, iterative, holistic)
Week 2	Business Process Modeling Basics	Ch. 3: Techniques for process discovery, as-is mapping techniques (interviews, workshops) Ch. 4: Process modeling fundamentals, BPMN basics, flow objects, connectors, swimlanes, pools, events, activities	—

Week	Lecture topic	Fundamentals of Business Process Management Chapters	This is Service Design Doing: Applying Service Design Thinking in the Real World - Chapters
Week 3	Advanced Process Modeling Techniques	Ch. 4 (cont'd): Gateways (XOR, AND, OR), subprocesses, boundary events, exceptions Ch. 5: Introduction to performance analysis, identifying issues in models	—
Week 4	Process Analysis and Individual Case Study	Ch. 5: Issue identification, performance indicators (cycle time, cost, error rates) Ch. 6: Qualitative tools (Fishbone, 5 Whys, Stakeholder maps), Lean concepts (TIMWOOD)	Ch. 3: Mapping services, visualizing user touchpoints, activity sequencing for improvements
Week 5	Team Assignment Presentation (Mapping)	Review: Ch. 3–6 – Discovery, Modeling, Analysis	—
Week 6	Introduction to Design Thinking	—	Ch. 2: Service design principles and mindset (fail fast, iterative design) Ch. 3: Steps of design thinking: Empathize, Define, Ideate, Prototype, Test
Week 7	Empathy Mapping & Problem Definition	Optional: Ch. 2: Stakeholder-based process identification	Ch. 4: Personas, journey maps, identifying user needs, HMW statements
Week 8	Ideation & Creativity	Optional: Ch. 8: Heuristics for process redesign, creative alternatives, innovation targets	Ch. 5: Divergent/convergent ideation, SCAMPER, Worst Possible Idea, idea clustering
Week 9	Prototyping & Individual Case Study	—	Ch. 6: Types of prototypes (paper to digital), simulation methods Ch. 7: Implementation readiness, pilot programs, iterative rollout
Week 10	Team Assignment Presentation (Design Thinking)	Review: Ch. 5–6	Review: Ch. 3–7 – Full DT process, synthesis, testing
Week 11	Project Management Introduction	Ch. 12: BPM governance, capability maturity, planning alignment	Ch. 7: Structuring service delivery projects, measuring outcomes, transitioning to

Week	Lecture topic	Fundamentals of Business Process Management Chapters	This is Service Design Doing: Applying Service Design Thinking in the Real World - Chapters
	& Guest Lecture		implementation
Week 12	Project Ideation, Initiating, & Planning	Ch. 2 (revisit): Process identification and decomposition Ch. 12: Roles, stakeholder alignment, business cases	Ch. 7: Planning a service initiative, scoping, kickoff strategies
Week 13	Risk Management	Ch. 6: Stakeholder analysis, qualitative risk indicators Ch. 11: Monitoring metrics, exception alerts, dashboards	Ch. 8: Embedding design processes, managing change and resistance, internal adoption
Week 14	Intro to Agile	Ch. 9: Automation infrastructure, workflow engines, agility through execution Ch. 10: Process monitoring, real-time visibility, iteration through feedback loops	Ch. 7 (revisit): Agile service delivery, iterative testing, continuous improvement
Week 15	Final Project Presentations	Review: Ch. 6, 11, 12 – Analysis, Monitoring, Strategic BPM	Review: Ch. 6–8 – Prototyping, Implementation, Organizational Rollout

Assignment Grading

Assignment type	Percentage
Check Your Knowledge	*10%*
Attendance	*5%*
Individual Exams	*40%*
Team Projects	*40%*
Survey	*5%*
Total	**100%**

Grading Scale

95-100% A	87-89.9% B+	77-79.9% C+	69.9% or below F
	84-86.9% B	74-76.9% C	
90-94.9% A-	80-83.9%B-	70-73.9% C-	

Attendance/Late Work Policy

Students registered in MGEN courses (INFO, CSYE, and DAMG) are allowed **a maximum of 2 absences per course, with 3 or more absences resulting in an automatic 'F' for that course.** Students are expected to inform their instructors of any absences in advance of the class; if a student is sick long-term or experiences a medical issue that prevents class attendance, it is strongly encouraged that they speak with their Academic Advisor (coe-mgen-gradadvising@northeastern.edu) to learn more about the Medical Leave of Absence. Should a student anticipate being unable to attend 3 or more classes, they should discuss their situation with their Academic Advisor to explore other types of leave in accordance with the University's academic and global entry expectations. International students should review the Office of Global Services webpage to understand their visa compliance requirements.

Teaching Assistants (TAs) or Instructional Assistants (IAs) will be present at each class to collect student attendance.

Late Work Policy

Standard Deadlines: Assignments must be submitted by the deadlines specified in the syllabus or as posted on Canvas.

Late Submissions: Late submissions will incur the following penalties unless prior approval is obtained:

• Up to 24 hours late: 10% deduction.

• 24–48 hours late: 20% deduction.

• More than 48 hours late: No credit (0 points).

Extension Requests: Students must request an extension within 24 hours before the deadline via email. Requests submitted after this timeframe will only be considered under exceptional circumstances (e.g., medical emergencies).

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is particularly important to the College of Engineering. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at **https://neu.evaluationkit.com**. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your Northeastern University Mail account notifying you when surveys are available.

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy.

Code of Student Conduct
Students are expected to adhere to the full Code of Student Conduct, which encompasses not only academic integrity but also behavioral expectations. Violations may lead to disciplinary actions as outlined in the university's Code of Student Conduct (https://catalog.northeastern.edu/handbook/code-studentconduct/).

MGEN Student Feedback
Students who would like to provide the MGEN unit with anonymous feedback on this particular course, Teaching Assistants, Instructional Assistants, professors, or to provide general feedback regarding their program, may do so using this survey: https://neu.co1.qualtrics.com/jfe/form/SV_cTIAbH7ZRaaw0Ki

University Health and Counseling Services
As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS.

For more information, visit https://www.northeastern.edu/uhcs.

Student Accommodations
Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit https://drc.sites.northeastern.edu.

Library Services
The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for education specific resources, visit https://library.northeastern.edu
Network Campus Library Services: Northeastern University Library Global Campus Portals

24/7 Canvas Technical Help
For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu

Canvas Student Resources: https://canvas.northeastern.edu/student-resources/

For assistance with my Northeastern e-mail, and basic technical support:
Visit ITS at https://its.northeastern.edu
Email: help@northeastern.edu
ITS Customer Service Desk: 617-373-4357

Diversity and Inclusion
Northeastern University is committed to equal opportunity, affirmative action, diversity, and social justice while building a climate of inclusion on and beyond campus. In the classroom, members of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration, and an awareness of global perspectives on social justice.

Please visit http://www.northeastern.edu/oidi/ for complete information on Diversity and Inclusion

Title IX
Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty, and staff.

In case of an emergency, please call 911.

*Please visit **https://www.northeastern.edu/ouec** for a complete list of reporting options and resources both on- and off-campus*.