Green University of Bangladesh
Department of Computer Science and Engineering

Course Outline

1 General Information

Spring 2024 CSE 403

Faculty	Faculty of Science and Engineering (FSE)
Department	Department of Computer Science and Engineering (CSE)
Programme	Bachelor of Science in Computer Science and Engineering
Semester	**Spring2024**
Course Title	*Information System & Design*
Course Code	CSE 403
Course Credit	3.0 units
Contact Hours	2.5/week
Course Status	Core Course
Prerequisite Course	CSE 313

2 Course Instructors

Section	Name	Office	Email
212 D4	Prof. Dr. Md. Ahsan Habib	A 506	mahabib@cse.green.edu.bd
212 D1	S.M.Rashidul Hasan Nijhum	A 608	nijhum@cse.green.edu.bd
213-D3	Meherunnesa Tania	A 608	tania@cse.greenn.edu.bd
212 D2	Rabea khatun	A 608	rabea@cse.green.edu.bd

3 Class Hours

Section	Room	Weekday	Time	Weekday	Time
212 D4	J 107	Monday	11:00 - 12:15 PM	Tuesday	11:00 - 12:15 PM
212 D1	J 106	Tuesday	12:15 - 1:30 PM	Thursday	12:15 - 1:30 PM
213-D3	A 606	Tuesday	2:00 Pm - 3:15 PM	Thursday	2:00 - 3:15 PM
212 D2	L 102	Friday	2:15 Pm - 3:30 PM	Saturday	3:15 Pm - 4:30 PM

4 Counseling Hours

Section	Weekday	Time	Weekday	Time
212 D4	Monday	12:15 - 1:30 PM	Tuesday	2:00 - 3:15PM
212 D1	Tuesday	11.00 AM-12.15 PM	Tuesday	8:30 AM-9:30 AM
213-D3	Tuesday	11:00 - 12:00 PM	Wednesday	8:30AM-9:30 AM
212 D2	Tuesday	11:00 - 12:00 PM	Wednesday	11:00 - 12:00 PM

5 Course Rationale

Introduction to information system, tools of information system development, information systems development life cycle, tools for analysis; planning phase: systems planning, preliminary planning and investigation, determining IS development requirements, project management; analysis phase: analyzing requirements, evaluating alternatives, information systems analysis principles; design phase: structured information systems design, input design and control, output system design; development phase: information systems development, computer-aided software engineering; implementation phase: systems implementation, systems evaluation and optimization, information systems documentation.

6 Course Description

This advanced course introduces you to a range of concepts used in the analysis and design of complex information systems. You will gain practical skills in modeling systems from the process and object perspectives as well as an understanding of the approaches that can be used when undertaking a holistic analysis and design project.

7 Teaching Methods

Most of the topics will be covered from the PPT file which directly matches the textbook. Whiteboards will be used most of the time. All the classes will be conducted with a projector. Students must participate in classroom discussions for case studies, problem-solving.

8 Course Outcomes

CO	CO Description	PO	Domain (LoBT)	Weight	WK	WP	EA	Assessment Methods
CO1	Integrate the key concepts of the systems development process - from planning to maintenance alongside classifying advanced system analysis and design using structured and object-oriented approaches to solve complex engineering problems.	PO2	Cognitive (C4)	40	WK1	WP1, WP2		Please refer to Section 9.
CO2	Justify the selection of the most appropriate system development approach for the given complex engineering problems thorugh comprehensive testing and analyzing.	PO4	Cognitive (C5)	50	WK8	WP2, WP3		
CO3	Adapt the most appropriate system development process, data flow diagramming, entity relationship and state process modeling for solving the complex problems..	PO5	Psychomotor (P3)	10	WK6	WP1, WP2, WP3		

Legend:

CO:	*Course Outcome*	**PO**:	*Program Outcome* (Appendix: A)
WK:	*Knowledge Profile* (Appendix: B)	**WP**:	*Complex Problem Solving* (Appendix: C)
EA:	*Complex Engineering Activities* (Appendix: D)	**LoBT**:	*Level of Bloom's Taxonomy* (Appendix: E)

9 Assessment Methods of COs

Assessment Method	CO1	CO2	CO3	Total
Final Exam	20%	20%		40%
Midterm Exam	15%	15%		30%
Class Tests	5%	5%		10%
K/S/A Test 1 (Assignment)		5%	5%	10%
K/S/A Test 2 (Group Task)		5%	5%	10%
Total	40%	50%	10%	100%

10 Topic Outline

Lecture	Selected Topic	Article	Problems
(1-2)	The Systems development and Environment: A modern Approach to system analysis and design, System development life cycle, Different Approaches to Improving Development: Agile methodologies, extreme Programming Object Oriented Analysis & Design	T 1 Ch. 1	1.1-1.5
(2-4)	The origins of software: outsourcing and sources of software	T 1 Ch. 2	2.1-2.4
(5)	Class Test-1 or KSAT-1	T 1 Ch. 1, 2	
(6-8)	Managing the Information System Projects: Project Management Activities, Estimating Task Duration, Critical Path Calculation,	T 1 Ch. 3	3.1-3.3
(8-10)	Identifying and Selecting Systems Development Projects	T 1 Ch. 4	4.1-4.3
(11)	Class Test 2 or KSAT-2	T 1 Ch. 2, 3	
(12-15)	Initiating and Planning Systems Development Projects: Assessing Project Feasibility, Determining Projects Benefits, Determining Project Costs, Time Value Of Money, Projects Risk Factors.	T 1 Ch. 5	5.1-5.4
(15-16)	Determining System Requirements: Traditional Methods for Determining Requirements, Contemporary Methods for Determining System Requirements	T 1 Ch. 6	6.1-6.3
(17-19)	Designing Databases: The process of Database Design, Relational Database Models, Normalizations, ER Diagrams, File Organizations, and Design Using UML	T 1 Ch. 9	9.1-9.3
(20-21)	Designing Forms and Reports	T 1 Ch. 10	10.1-10.3
(22-25)	System Implementation: Major Activities of Implementation,	T 1 Ch. 13	12.1-12.4
(26-28)	Maintaining Information Systems	T 1 Ch. 14	13.1-13.3
(29-30)	People management and Process change management	T 2 Ch. 14	14.1-14.3

For the definitions of T and R , Please refer to Section 11.

11 Text and Reference Materials

T 1 Textbook 1:

- *Joseph Valacich & Joey George*, **Modern Systems Analysis and Design**, 9th Edition, Pearson, 2016.

T 2 Textbook 2:

- *Kenneth Kendall & Julie Kendall*, **Systems Analysis and Design**, 9th Edition, Pearson, 2013.

R References:

- *John W. Satzinger, Robert B. Jackson, & Stephen D. Burd*, **Systems Analysis and Design in a Changing World**, 7th Edition, RB & Burd SD, 2016.

12 Grading Policy

Marks Obtained	Letter Grade	Numerical Evaluation	Definition
80% and above	A+	4.00	Excellent
75% <80%	A	3.75	Excellent
70% <75%	A-	3.50	Very Good
65% <70%	B+	3.25	Good
60% <65%	B	3.00	Good
55% <60%	B-	2.75	Good
50% <55%	C+	2.50	Average
45% <50%	C	2.25	Average
40% <45%	D	2.00	Below Average
below 40%	F	0.00	Failing

13 Additional Course Policies

1. **Equipment and Aids**: Bring your own materials such as a calculator, notebook, and pen to participate effectively in classroom activities. You are NOT allowed to borrow from others inside the classroom which may potentially create distractions for your classmates.

2. **Assignments**: There will be a number of assignments for formative assessment purposes. The average of the assignment marks will be used for computing the final grade. Late submission of homework will carry a zero mark.

3. **Class Tests**: There will be at least three Class Tests taken during the semester and the best two will be counted for final grading. A class test can be taken with/without prior announcement.

4. **Examinations**: The midterm and final examinations will be a closed book, closed notes. Mobile phones are strictly prohibited in the exam hall. Please bring your own watch (non-smart) and synchronize at the beginning of the examination.

5. **Test Policy**: In case of missing a test without prior notice to the respected faculty member, a zero mark will be given. No makeup tests will be taken as the best two test scores will be considered for grading out of three tests.

6. **Mobile Devices Policy**: Empirical evidence of using multitasking devices such as laptops and smartphones in the classroom hinders the learning experience. Thus, the use of multitasking devices is strictly discouraged. Switch off your laptop/mobile devices during class activities.

14 Additional Information

Please click or scan:

Academic Calendar Spring, 2024:

Academic Information and Policies:

Proctorial Rules:

Grading and Performance Evaluation:

S.M.Rashidul Hasan Nijhum
Course Coordinator, CSE 403
April 3, 2024

Dr. Muhammad Aminur Rahaman
Chairman, Department of CSE
April 3, 2024

Appendix A : Program Outcomes

POs	Category	Program Outcomes
PO1	Engineering Knowledge	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2	Problem Analysis	Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first principles of mathematics, the natural sciences and the engineering sciences.
PO3	Design/Development of Solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety as well as cultural, societal and environmental concerns.
PO4	Investigations	Conduct investigations of complex problems, considering design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
PO5	Modern tool usage	Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
PO7	Environment and sustainability	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics	Apply ethical principles and commit to professional ethics, responsibilities and the norms of the engineering practice.
PO9	Individual work and teamwork	Function effectively as an individual and as a member or leader of diverse teams as well as in multidisciplinary settings.
PO10	Communication	Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write effective reports, design documentation, make effective presentations and give and receive clear instructions.
PO11	Project management and finance	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member or a leader of a team to manage projects in multidisciplinary environments.
PO12	Life Long Learning	Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.

Appendix B : Knowledge Profile

Knowledge Profile	Attribute
WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline
WK2	Conceptually based mathematics, numerical analysis, statistics and the formal aspects of computer and information science to support analysis and modeling applicable to the discipline
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline
WK5	Knowledge that supports engineering design in a practice area
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline
WK7	Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the engineer's professional responsibility to public safety; the impacts of engineering activity; economic, social, cultural, environmental and sustainability

WK8	Engagement with selected knowledge in the research literature of the discipline

Appendix C : Range of Complex Engineering Problem Solving

Attribute	Identity	Complex Engineering Problem Description
Depth of knowledge required	WP1	Cannot be resolved without in-depth engineering knowledge at the level of one or more of K3, K4, K5, K6 or K8 which allows a fundamentals-based, first principles analytical approach
Range of conflicting requirements	WP2	Involve wide-ranging or conflicting technical, engineering and other issues
Depth of analysis required	WP3	Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models
Familiarity of issues	WP4	Involve infrequently encountered issues
Extent of applicable codes	WP5	Are outside problems encompassed by standards and codes of practice for professional engineering
Extent of stakeholder involvement and conflicting requirements	WP6	Involve diverse groups of stakeholders with widely varying needs
Interdependence	WP7	Are high-level problems including many component parts or sub-problems

Note: Complex Engineering Problems have identity P1 and some or all of P2 to P7.

Appendix D : Range of Complex Engineering Activities

Attribute	Identity	Activity Description
Range of resources	EA1	Involve the use of diverse resources (and for this purpose resources include people, money, equipment, materials, information and technologies)
Level of interaction	EA2	Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues
Innovation	EA3	Involve creative use of engineering principles and researchbased knowledge in novel ways
Consequences for society and the environment	EA4	Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation
Familiarity	EA5	Can extend beyond previous experiences by applying principles-based approaches

Note: Complex activities means (engineering) activities or projects that have some or all of the above activities.

Appendix E : Domain and Level of Bloom's Taxonomy

Cognitive Domain		Psychomotor Domain		Affective Domain	
C1	Remembering	P1	Perception	A1	Receive
C2	Understanding	P2	Set	A2	Respond
C3	Applying	P3	Guided Response	A3	Value
C4	Analyzing	P4	Mechanism	A4	Organize
C5	Evaluating	P5	Complex Overt Response	A5	Internalize
C6	Creating/ Designing	P6	Adaption		
		P7	Origination		