NORTH SOUTH UNIVERSITY
Center of Excellence in Higher Education
The first private university in Bangladesh

School of Engineering & Physical Sciences
Electrical & Computer Engineering

Course Name	**Engineering Drawings**
Course Code & Section No.	**EEE 154 Sections 1, 2, 3**
Semester	**FALL 2021**

Instructor Name	Mujtaba Ahsan
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Links	North South University Website: http://www.northsouth.edu School Webpage: http://www.northsouth.edu/academic/seps/ Department Webpage: http://ece.northsouth.edu/

COURSE AND SECTION INFORMATION

Class Time & Location	**S 01:00 PM - 02:30 PM; LIB 608** **R 01:00 PM - 02:30 PM; LIB 608** **R 04:20 PM - 05:50 PM; LIB 608**
Course Prerequisite(s)	None
Course Credit Hours	1.0
Course Description	Lettering, numbering and heading; plane geometry. Projection (Solid Geometry). Development and true shape: cube, pyramid, cone, prism; section and true shape. Isometric drawing, oblique drawing. Plan, elevation and section of engineering structures. Introduction to Computer Aided Design (CAD)
Course Objectives	Introduce the students to the basics of engineering drawing communication using computer aided drawing BAETE Criteria (j) 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. ABET Criteria (g) • Demonstrate effective nonverbal communication skills using technical drawings • Present work effectively to a range of audiences using technical drawings

Student Learning Outcomes	On successfully completing this course, students will be able to: CO 1 Recall the common basic engineering technical drawing conventions and technical terms CO 2 Appreciate the visual nature of technical drawings as a means of communication CO 3 Demonstrate the ability to communicate by means of schematic drawings, scaled drawings and projection drawings following standard technical drawing conventions

Mapping of Course Outcomes with Program Outcomes, Delivery Methods and Assessment Strategies

	Course Outcomes (CO)	Bloom's taxonomy domain/level (**C***: Cognitive* **P***: Psychomotor* **A***: Affective)*	Delivery methods and activities	Assessment tools
CO-1	Recall the common basic engineering technical drawing conventions and technical terms	**C2**	Lecture, Discussion	Quiz
CO-2	Appreciate the visual nature of technical drawings as a means of communication	**C3**	Lecture, Discussion, Demonstration	Assignment, Mid Term & Final Examination
CO-3	Demonstrate the ability to communicate by means of schematic drawings, scaled drawings and projection drawings following standard technical drawing conventions	**C3**	Demonstration	Assignment, Mid-Term, Final Examination

Cognitive domain (knowledge-based): **C**
1: Knowledge, 2: Comprehension, 3 Application, 4 Analysis, 5: Synthesis, 6: Evaluation

The affective domain (emotion-based): **A**
1: Receiving, .2: Responding, 3: Valuing, 4: Organizing, 5: Characterizing

The psychomotor domain (action-based): **P**
1: Perception, 2: Set, 3: Guided response, 4: Mechanism, 5: Complex overt response, 6: Adaptation, 7: Origination

RECOMMENDED TEXT (s) – Primary and Supplementary

Author	Title	Edition & Year	Publisher
Gary R.Bertoline, Eric N Wiebe & Craig l. Miller	Fundamentals of Graphics Communication	3rd Edition, 2002	McGraw-Hill, Boston
K. Rathnam	A First Course in Engineering Drawing	2018	Springer

TEACHING STRATEGY

- **Lectures:** students will be given lectures with the support of Power point slides, and hand drawn sketches

- **Laboratory Demonstration:** students will be given hands-on demonstration on how to use software tools to produce technical engineering drawings

Topics to be covered and level of coverage (Topic/Hours): (Subject to change by the instructor)

Topic	Level of Coverage	Hrs
Engineering drawing, conventions, terminologies, ISO standards for typical technical drawing	Know that there are national and international drawing conventions and standards, ISO as the international standard, BSTI as the local standard, common line types, lettering conventions, dimensions, and projections	1.5
Schematic drawing part 1: Illustration (emphasis computer science graduates)	Learning to use Adobe Illustrator as a schematic drawing tool; familiarization with software environment, learning to use basic drawing tools; introduction to basic geometric shapes; learning to derive complex shapes applying principles of addition, subtraction, modification, transformation and tracing. Text and shape editing tools and techniques. Application of color. Creation and use of custom library, use of built-in library shapes and symbols for productivity	4.5
Projection drawing	Learning to use SketchUP software as a 3D modeling tool. Familiarization with software environment, basic 3D geometry, cube, cone, sphere, cylinder etc. Complex 3D shapes using addition, Boolean subtraction, and push pull. Transformation using move, rotate, scale, follow-me and extrusion. Drawing helper tools – measuring scale and dimensions. Navigation tools. Exporting to layout software.	4.5
Part and scale drawings	Learning to use Layout Software as a layout tool. Familiarization with software tools, setting part and projection views on a page, creating ISO standard page layouts, applying drawing scale, dimensions, hidden lines, center lines, labels and exporting drawings.	3
Schematic drawing part II: (emphasis electrical engineering students)	Learning to use AutoCAD as standard CAD software. Familiarization with shape tools, editing tools and text tools. Page layout and printing/ plotting techniques. Learning to manipulate line color, weight and type. Layering in drawing as a management tool. Adding labels to drawing and exporting as image or portable document. Learning to create single line electrical diagrams (SLD)	4.5

ASSESSMENT STRATEGY AND GRADING SCHEME

Performance in ALL the examinations will determine a student's final grade. The relative weightages are distributed in the following manner: (based on class progress, the instructor may vary the assignment of values to each assignment or modify the number of assessments)

Assessment Area	**Percentage Marks**
Assignment	10
Class Test	10
Mid Term	20
Final Examination	50
Attendance	10
Total	100 (100%)

NSU's grading and performance evaluation policies will be followed in assigning your grade. Please note that all final grades are subject to departmental review and approval.

CLASSROOM RULES OF CONDUCT

1. The ground rule for class is to be respectful, and open in communication. Students and teachers many have things to learn from each other. Contribution from all is appreciated.

2. When a student comes to the class, (s)he become part of a learning community. A student must be conscious of the community role, and work towards creating a healthy learning atmosphere in the classroom.

3. It is not appreciated if a student is found chatting or speaking on a mobile device during the class. If a student must do it, then it is advisable to take leave and go outside of the class to complete the discussion. Inability to refrain from unnecessary, disruptive chatting may result in a request to leave the classroom.

4. If a student has to leave the class when it is in progress, it is advisable to sit near the door and leave silently.

5. While in class, students must switch off their cell phones. Inability to do so may result in some penalty.

6. Students must seek permission before using any sort of electronic gadget in the class such as a laptop. Use of such gadgets for purposes other than note-taking during lectures may be prohibited.

7. Students are expected to not eat while a class is in progress.

8. **Academic Integrity Policy:** North South University does not tolerate academic dishonesty. Students must not cheat, do copyright infringement, submit the same work in multiple courses, do significant collaboration with other individuals outside of sanctioned group activities, and fabrications. Violations of the Student Integrity Code are to be treated seriously, with special attention given to repeated offences. Please refer to NSU Code of Conduct at http://www.northsouth.edu/student-code-of-conduct.html

9. **Gender Equity Policy**
   In accordance with the gender policies of the university, students will be evaluated equally regardless of his/her gender and strictly on the basis of the individual performance.

10. **Inclusive Education Policy Statement**
    All students will be given equal access to resources, consultation hours free from discrimination based on gender, language, religion, ethnicity, disability or socio-economic background.

11. **General Rules:**
    - The instructor has the right to modify, add, or remove topics in the syllabus.
    - No one is exempt from any test, homework, quiz, and final exam.
    - Use of cell phones in the class is not permitted.
    - A student who is absent from a class is responsible for obtaining knowledge of what happened in the class, especially information about announced tests, papers, or other assignments.
    - If a student misses a previously announced examination without valid reason and prior written notification to the instructor, (s)he is not entitled to make up the exam.

EXAMS AND MAKE UP EXAMS POLICY

12. **Rules and Policies for Examinations:**
- Students must come prepared for all examinations and juries on the designated dates and times
- Students must come on time. Students may be barred from appearing for final examinations if they are more than 30 minutes late
- Being late does not necessarily guarantee that a student is going to get extra time for attending the examination or jury
- Academic misconduct or failure to comply with NSU Examination Code of Conduct may result in failure or F grade.

ATTENDANCE POLICY

13. **Attendance policy:**
    Attendance in classes is integral to the success of a student in a course. Nevertheless, if a student needs to miss a class for unavoidable reasons, the student must e-mail the instructor prior to the class period stating the reason for being absent. In case the student fails to notify the instructor because of illness or other unavoidable reasons, certification such as a doctor's certificate may be necessary to get the absence excused. A partially unexcused absence may result from the following:
    - A weak excuse for missing the class for which a prior e-mail message was sent
    - Coming late or leaving early
    - Disruptive behavior that results in instructor asking the student to leave for the rest of the period

14. **Late Submission Rules:**

Students must attend 60% of the classes to be eligible to receive final grades. However illness will be considered a legitimate excuse for absence if the student can produce supporting documents. Late submission or absence from reviews with a valid reason such as debilitating illness, demise of close family members, accidents, etc. will be considered as legitimate and considered for late submission if the student can produce supporting evidence. This will be subject to acceptance and verification by the course teacher. Based on the nature of tardiness, the course teacher may choose to deduct grades obtained for the work(s) submitted late.

TENTATIVE COURSE CONTENTS AND SCHEDULE

Week#	Class#	Day	Date	Topic	Chapter
1	1	1	As per academic calendar	Course objectives, introduction, overview of course; software download and installation	00
2	2	2	As per academic calendar	Drawing conventions, technical terms, types of projections, and ISO standards for technical drawing. Introduction to schematic drawing,	01
3	3	3	As per academic calendar	Schematic drawing, learning to use software tools to drawing basic shapes, complex shapes, trace and library shapes. Text manipulation. Working with geometry	01
4	4	4	As per academic calendar	Schematic drawing, learning to use software tools to drawing basic shapes, complex shapes, trace and library shapes. Text manipulation. Working with geometry	01
5	5	5	As per academic calendar	Schematic drawing, learning to use software tools to drawing basic shapes, complex shapes, trace and library shapes. Text manipulation. Working with geometry	01
6	6	6	As per academic calendar	Projection drawing, learning to make 3D models, three-dimensional geometry, cube, cylinder, cone, sphere, etc. Complex geometry by addition, dimensional transformation, subtraction. Learn about scale and modeling in scale	02
7	7	7	As per academic calendar	Projection drawing, learning to make 3D models, three-dimensional geometry, cube, cylinder, cone, sphere, etc. Complex geometry by addition, dimensional transformation, subtraction. Learn about scale and modeling in scale	02
8	8	8	As per academic calendar	Page layout and scale drawings, learning to create ISO standard page layouts, part and projection drawing layout, add scale, dimensions, center lines, hidden lines and labels.	02
9	9	9	As per academic calendar	Page layout and scale drawings, learning to create ISO standard page layouts, part and projection drawing layout, add scale, dimensions, center lines, hidden lines and labels.	02
10	10	10	As per academic calendar	Introduction to AutoCAD as standard CAD software; basic shapes, complex shapes and lines, modification tools, annotation tools; Single line diagram (SLD)	03
11	11	11	As per academic calendar	Introduction to AutoCAD as standard CAD software; basic shapes, complex shapes and lines, modification tools, annotation tools; Single line diagram (SLD)	03
12	12	12	As per academic calendar	Introduction to AutoCAD as standard CAD software; basic shapes, complex shapes and lines, modification tools, annotation tools; Single line diagram (SLD)	03

*** **The faculty reserves the right to make changes to the course outline.**