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

School of Engineering & Physical Sciences
Department of Electrical and Computer Engineering

Course Name	**Engineering Drawings**
Course Code & Section No.	**EEE 154 Sections 1,2,3**
Semester	**FALL 2020**

Instructor Name	Mujtaba Ahsan
Office	SAC910
Office Hours	A 11:20 – 12:50 pm ; MW 4:20 - 550 pm
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Department	Architecture
Links	North South University Website: http://www.northsouth.edu School Webpage: http://www.northsouth.edu/academic/seps/ Department Webpage: http://www.northsouth.edu/academic/seps/architecture.html **Google Classroom Access Code:** 2j2fmwc (SEC 3), 7lzq2ds (SEC 2), biiujsf (SEC 1)

COURSE AND SECTION INFORMATION

Class Time & Location	**M 4:20 pm – 5:50 pm; LIB 608 (SECTION 1)** **W 4:20 pm – 5:50 pm; LIB 608 (SECTION 2)** **A 9:40 am – 11:10 am; LIB 608 (SECTION 3)**
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	Student learning outcome (g) an ability to communicate effectively • 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 general technical drawing terminology: top view, side view, sectional view, plan, elevation, part drawing, projection drawing, axonometric drawing, isometric drawing, perspective drawing CO 2. Outline the typical technical drawing layout format as per the ISO standards in terms of paper size and information arrangement

	CO 3.	Draw using computer aided drafting software schematic drawings such as flowcharts, circuit diagrams, basic shapes and single line electrical diagrams; draw mechanical-object projection and part drawings and prepare layouts for production

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 (faculty members can choose any number of tools)**	**Assessment tools (faculty members can use any number of tools)**
CO-1	Recall general technical drawing terminology: top view, side view, sectional view, plan, elevation, part drawing, projection drawing, axonometric drawing, isometric drawing, perspective drawing	**C1**	Lecture, Discussion	MCQ Quiz
CO-2	Outline the typical technical drawing layout format as per the ISO standards in terms of paper size and information arrangement	**C1**	Lecture, in-class Drawing Exercises	Drawing Exercises Drawing Tests
CO-3	Draw using computer aided drafting software schematic drawings such as flowcharts, circuit diagrams, basic shapes and single line electrical diagrams; draw mechanical-object projection and part drawings and prepare layouts for production	**P1**	Drawing Exercises and Demonstrations in Class	Mid- Term & Final Exam on Drawing

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**
BERTOLINE, Gary R., WIEBE, Eric N & MILLER Craig L.	Fundamentals of Graphics Communication	3rd Ed. 2002	McGraw-Hill, Boston

TEACHING STRATEGY

- **Drawing Exercises:** students will be taught hands-on, on how to draw digitally using common computer software.
- **Assignment:** students will be given a take-home assignment on a topic on technical drawing
- **Class Lecture:** students will be given lectures and demonstrations on drawing conventions.

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

Topic	Level of Coverage	Hrs
Introduction to technical drawing for engineers	Introduction, international conventions on technical drawing, purpose of technical drawing, standard ISO paper sizes, standard technical drawing sheet layout, description of technical drawing terms - part drawing, projection drawing, schematic drawing	1.5
Illustration and schematic drawing	Introduction to illustration software – Adobe Illustrator. Familiarization with user interface, tools, and navigation. How to draw line, line types (solid, dotted, arrowhead, line thickness), basic shapes (rectangle, square, circle etc.), complex shapes using pathfinder tool, color, text, manipulate text by changing shape, size, font, spacing, color and follow specific path and bounding box. Schematic drawing – flowchart, electrical circuit, logo. Use of library symbols	4.5
Projection drawing and part drawing	Introduction to 3D projection drawing, and part drawing. Introduction to SketchUP software, user interface, drawing tools and navigation. How to set drawing scale and draw a simple mechanical object in 3D using scale and derive isometric projection view and part views. Derive top view, front view, right view etc. Create dimensions and labels and prepare a page layout.	7.5
Single Line Electrical Diagram	Introduction to AutoCAD software. Interface, tools, navigation. Basic drawing utility – line, circle, arc, rectangle, ellipse, hatch. Basic edit utility – move, rotate, trim, erase, copy, mirror, scale, array, offset. Basic annotation utility – multiline text and text edit tool. Setting up a page layout and preparing for print. Drawing basic electrical single line diagram	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**
Class assessment	10
Quiz	10
Mid-Term	20
Final Exam	50
Attendance	10
Total	100 (100%)

NSU's grading and performance evaluation policies will be followed in assigning students' grade. Grading may be weighted and all final grades are subject to departmental review and approval.

CLASSROOM RULES OF CONDUCT

1. Students must 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 becomes 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.

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

8. **Academic Integrity Policy:** the Department of Electrical and Computer Engineering 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.
    - The instructor has the right to revise relative weightage assigned to each examination, quizzes and other assessment criteria any time before final grade submission
    - 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, is not entitled to make up the exam.
    - Students are expected to be honest and forthright in their academic endeavors. Academic dishonesty includes cheating, inventing false information or citations, plagiarism, tampering with computers, destroying other people's property, or academic misconduct.

EXAMS AND MAKE UP EXAMS POLICY

12. **Rules and Policies for Examinations:**
    - Students must come prepared for all examinations and juries
    - Students must come on time
    - Being late does not necessarily guarantee that a student is going to get extra time for attending the jury
    - Any unfair means adopted in the final and class assessments are to be seriously dealt with.
    - Academic misconduct or failure to comply with NSU Examination Code of Conduct may result in F

ATTENDANCE POLICY

13. **Attendance policy:**
    Attendance in classes is integral to the success of a student in this 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 partial unexcused absence may result from the following behaviors:
    - 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 and the course teacher may choose to deduct grades obtained for the work(s) submitted late.

COMMUNICATION POLICY

TENTATIVE COURSE CONTENTS AND SCHEDULE

Week#	Class#	Day	Date	Topic	Chapter
1	1	1	22, 25, 27 Jan 2020	Introduction to course objectives, learning outcomes, drawing conventions and drawing terms	01
2	2	2	29, 3, 5 Jan, Feb 2020	Introduction to illustration, Adobe Illustrator, user interface, drawing tools, navigation, drawing basic shapes, lines, text. Complex shapes using pathfinder	02
3	3	3	8, 10, 12 Feb 2020	Flowchart drawing, logo drawing	03
4	4	4	15, 17, 19 Feb 2020	Circuit drawing	04
5	5	5	22, 24, 26 Feb 2020	Introduction to SketchUP, user interface, drawing tools, navigation, how to draw basic shapes, cubes, cylinder, sphere, modifying basic shapes, setting scales	05
6	6	6	29, 2, 4 Feb, Mar 2020	Drawing a mechanical flange, creating axonometric view, top view, front view, side view, page layout and labels	06
7	7	7	7, 9,11 Mar 2020	Drawing a mechanical flange, creating axonometric view, top view, front view, side view, page layout and labels	06
8	8	8	14, 16, 18 Mar 2020	QUIZ/ MID-TERM	N/A
9	9	9	21, 23, 25 Mar 2020	Introduction to AutoCAD, user interface, drawing tools, navigation, how to draw basic shapes, line, rectangle, circle, text, modification, copy, erase, array, offset, trim, mirror, page layout and printing	07
10			28, 1, 4 Mar, Apr 2020	Drawing electrical single line diagram	08
11			6,8,11 Apr 2020	Drawing electrical single line diagram	08
12			13, 15, 18 Apr 2020	Drawing electrical single line diagram	08

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