

ME 407-101/HM1: Heat Transfer
Lecture: W 6.00 PM - 8.50 PM (CKB 204)

(2024 Fall)
(E.S. Lee)

Instructor: Dr. Eon Soo Lee (Office: MEC313) (Phone: 973-596-3318) (Email: consoo.lee@njit.edu)
Office hour: **T/W 12:00 - 1:00 PM** (MEC313, or Zoom link provided separately to class)

Prior confirmation for meeting or appointments required.
Also available before or after the class or during the break in the classroom.

TA: Yudong Wang (yw35@njit.edu) and Niladri Talukder (nt22@njit.edu).
Office: MEC 333-E. Phone: 973-596-5705.

Course description: A study of the three fundamental modes of heat transfer: conduction, convection, and radiation. A physical interpretation of the many quantities and processes in heat transfer including numerical methods. Theory is applied to the analysis and design of heat exchangers and other applications. Where appropriate, computer simulation is used.

Objective: (i) To understand the basic heat transfer modes of conduction, convection and radiation, and
(ii) build up the capability to apply the heat transfer relations for the analysis of heating, cooling or thermal systems through HWs, Exams and Project.

Pre-requisite:

Math 222 – Differential Equations, Linear Algebra/Matrix, or equivalent,
ME 311 – Thermodynamics I or equivalent (energy conservation, 1st law of Thermodynamics)
ME 304 – Fluid Mechanics (laminar/turbulent, boundary layer analysis, internal/external flow, non-dimensional analysis and parameters)

Required Text books and related materials

Incropera and DeWitt, **Introduction to Heat Transfer, 6th edition**. John Wiley & Sons 2011, or equivalent.
Incropera and DeWitt, **Fundamentals of Heat and Mass Transfer, 7th edition**. John Wiley & Sons 2011, or equivalent.
(Older or newer version also fine for the lecture.)

Computer Usage in Course and how used:

- Computer software and commercial software package for calculation, modeling and simulations for project performance. Computer software available from the textbook and/or ME CAD room and other sources.
- Use existing software to solve practical heat transfer problems as demonstrated in the project reports.

Course Learning Outcomes: Upon completing this course, students will be able to:

- mathematically** describe different practical heat transfer problems including governing equations together with boundary and initial conditions
- solve** the heat transfer problems for a range of practically important simplified configurations and symmetries, including one-dimensional problems in cylindrical and spherical coordinates
- use** generic data processing software to solve heat transfer problems
- apply** finite difference methods for transient heat transfer in a solid with or without distributed heat sources

- (v). **describe** engineering heat transfer problems using non-dimensional criteria, such as Reynolds number, Nusselt number, Rayleigh number, etc
- (vi). **determine** engineering design quantities (power, requirements, insulation thickness, thermal conductivity, exchanger size, etc.) required for design of thermal engineering devices and systems

Student Outcome(s): Upon completing this course, students will be able to:

- (i) identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- (ii) *communicate effectively with a range of audiences*
- (iii) *recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts*
- (iv) function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- (v) develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- (vi) *acquire and apply new knowledge as needed, using appropriate learning strategies*

Note: Substitute Online Meeting Room for special/emergency cases only (Prior announcement to be emailed).

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ME 407-101/HM1 : Virtual Class Meeting Room Information

Wednesday, 6-8:50pm

Join Zoom Meeting

<https://njit-edu.zoom.us/j/92080178479?pwd=6DbmT4itZQ4aw42AQHGGBVFkeG1haI.1>

Meeting ID: 920 8017 8479

Passcode: 272662

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- The Zoom virtual classroom is prepared only for substitute for special or emergency cases.
- If that's the case, the instructor will give a prior announcement through Canvas by email.
- Pay attention to Canvas announcement!

Weekly Lecture Schedule

Week	Contents	HW due	Remarks
1	(9/4) Heat transfer course introduction, syllabus, project guideline. Ch1: Intro to HTR (conduction, convection) Ch1: Intro to HTR (radiation) (Thermodynamics)		Add/Drop DL (9/9)
2	(9/11) Ch2: Intro to conduction (Fourier's Law, Diffusion eqn, transient behavior) Ch3: 1-D steady- plane wall, radial system w/o heat generation.		
3	(9/18) Ch3: 1-D steady cond. – heat generation system. Ch3: 1-D steady cond. – fin analysis	HW1 (ch1&2)	
4	(9/25) Ch4: 2-D steady cond.- SoV; shape factor Ch4: 2-D steady cond.- finite difference method (Quiz #1)	HW2 (ch3)	
5	(10/2) Ch5: Transient Cond. – lumped capacitance method Ch5: Transient Cond. – one term approximation; semi-infinite solid	HW3 (ch4)	
6	(10/9) Ch5: Transient Cond. – finite difference method (explicit, implicit) Ch6: Intro to Conv. – Boundary Layer, conv coefficient		
7	(10/16) Ch6: Intro to Conv. –Non-dim parameters and Reynolds Analogy Ch7: External flow – Flat plate in parallel flow	HW4 (ch5)	Report Announce
8	(10/23) Midterm (Conduction. Ch1-5)		
9	(10/30) Ch7: External flow – Cylinder in cross flow, Sphere Ch8: Internal flow –fully develop, constant T & constant heat flux analysis	HW5 (ch6)	Planning report.
10	(11/6) Ch8: Internal flow- heat transfer correlations, entry length effect Ch9: Free convection – laminar BL, Boussinesq approx., similarity Ch10. Pool boiling, film boiling, film condensation	HW6 (ch7)	Withdraw DL
11	(11/13) Ch11. HEX- parallel and counter flow analysis, LMTD method Ch11. HEX- Effectiveness-NTU method (Quiz #2)	HW7 (ch8)	
12	(11/20) Ch12. Radiation: Blackbody, Wien's Displacement law, S-B law, Kirchhoff's law Ch13. View factor	HW8 (ch9-11)	Progress report
13	(11/27) Thanksgiving		
14	(12/4) Ch13. Radiation exchange: blackbody Ch13. Radiation exchange: opaque, gray body		
15	(12/11) Project Presentation Final Report (Due on Reading Day 2)	Practice (ch12-13)	Final report
	(12/18) Final Exam (Convection – Radiation)		

* This schedule is subject to change during the actual running of the semester.

Grading Policies (Honor section will be separately graded from Regular section.)

- (1) Grading (total 120): Grading Scale: A(>90), B(>80), C(>70), D(>60), otherwise curved.
 - Homeworks (20): All homeworks.
 - Quizzes (20): Two (2) quizzes.
 - Midterm (20)
 - Final (30)
 - Project (30): planning, progress, final reports, and final presentation.
- (2) **Homework: Team submission (by Online submission to Canvas) (See details for S1)**
 - **4 members/team (three members per team minimum)**
 - **HWs are due at 6 PM on the due date.**
 - o Late submission **within one week** from the due date - **30% loss in grading.**
 - o Late submission **over one week** from the due date – Not Accepted for grading (zero point).
 - **Note: Up to 30% loss if not following the homework submission guidelines (See S1)**
- (3) **Final project: Team Submission (see the guidelines for details in S2. and S3. for Final Project)**
 - **4 members/team (three members per team minimum)**
 - **Planning Report, Progress Report, Final Report** to be submitted on each deadline.
 - **Final presentation** to be conducted in class by team basis.
 - **Final presentation slides** to be submitted on time.
 - Project progress meeting (if necessary) with Instructor available. See the details in **S4. Project Progress Meeting Guideline.**
 - **Online submission to Canvas** (Also, optional Hardcopy hand-in)
- (4) **Exams (see the details in S5. Exam Guideline.)**
 - **Quizzes:** Closed book/note.
 - **Midterm/Final:** Closed book/note.
 - Simple Calculator (No programmable calculator). No share of calculator.
 - No tele-communication tools, such as cell phone, lab-top, smart watch, etc.

Note-1: “NO EXAM” goes to ZERO point.

- except only for the **instructor-approved & officially documented** excuse from Dean of Students
 - **80% Rule for quizzes:** For officially excused cases only, 80 % of the student’s overall performance of **all the other exams** (Quizzes, Midterm & Final) will go into the grade of the excused exam. However, it’s NOT applicable for Midterm and Final.
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NJIT Canvas <https://njit.instructure.com/courses> (UCID login required)

- Check and update your contact email address in Canvas. Everything will be emailed through it.
- Every notice, changes and HWs, Exams information will be posted on Canvas, and sent through it.

Note: If you have any questions, please email or contact me for clarifications.

**** **NJIT Honor Code – Strictly Enforced******

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

(Refer to S6. NJIT Honor Code for details.)

This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.

S1: HW Submission Guideline

- Team HW submission only, to Canvas. No individual submission.
- Encourage the discussion to understand the problems with your group.
- Each HW will be posted on Canvas.

Note: Up to 30% loss if not following the homework submission guidelines

- HWs Must have a **cover page**. (see below for cover page guideline)
- Each problem MUST start on a **new page**. Don't put multiple problems on one page.
- Each problem should have the following headings:
 - i. Known: A brief summary of the problem, "in your own words".
 - ii. Find: Quantities to be determined.
 - iii. Schematic: Sketch the physical system
 - iv. Assumptions: Assumptions to be used in solving the problem are listed.
 - v. Properties: Material properties needed, values and sources.
 - vi. Analysis: Solve a problem in a systematic and logical manner, **showing all steps**.
 - vii. Final Answers MUST be clearly given in a **BOX**.

- HWs MUST be submitted with cover page as followed by the example format.

- HW cover page is a MUST: write HW# and the corresponding chapter, submission date, name, etc as shown below.

Note: If you have any questions, please email or contact me for clarifications.

HW cover page example

ME 407-101: Heat Transfer.

HW Set #1 (Chapter 1 & 2)

Name1, ID 312-31-xxx

Name2, ID 312-31-xxx

Name3, ID 312-31-xxx

Name4, ID 312-31-xxx

DUE date and time: September xx, 2022 (6 PM)

Submission date: mm/dd/2022

(or a different date if submitted on the different date)

Problem solved: total 4 problems answered out of 5

1-3,

1-15,

2-5,

Problem tried: but not getting to the final answers
2-17

Problem Not solved/tried: 1
2-23

HW cover page example for Honor Section

ME 407-HM1: Heat Transfer

Honor section students:

Additionally,

Must also solve honor section problem (H) if applicable.

Name1, ID 312-31-xxx

Name1, ID 312-31-xxx

Name1, ID 312-31-xxx

Problem solved: total 6 problems answered out of 7
1-3,
1-15, (regular section)

plus honor section problems to be solved, if given.

2-19H

2-35H

Problem tried: not getting to the final answers
2-17

Problem Not solved/tried: 1
2-23

S2. FINAL PROJECT Information

I. Schedule and Grading

(1) Term Project schedule and Due: **PDF Softcopy to Canvas**

- Planning Report (10/30. Wed. 6 PM): 2 or more pages, in addition to a Cover Page.
- Progress Report (11/20. Wed. 6 PM): up to 10 or 15 pages, depending on the progress.
- Final Report (12/13. Fri. 6 PM): **max. 15 pages**, excluding cover page, table of contents, references, and appendix. (**MUST - Softcopy to Canvas on time.**)
- Final Presentation (12/11. Wed. 6pm): in-class presentation. (Also, either **PDF or PPT** copy to Canvas on time.)

Note: Late Submission grading:

- Late submission within **One Week** from the due date - **30% loss in grading.**
- Late submission after **One Week** from the due date – Not Accepted for grading (**zero point**).

(2) Project Grading percentage: Out of Total Project percentage (150%).

- i. Project Planning Report (20%)
- ii. Progress Report (30%)
- iii. Final Report (50%)
- iv. Final Presentation (50 %)

II. Deliverables and Grading Consideration

(1) Planning Report: (20%)

- Cover page – title, team info if composed of 2 members, submission date
- 2+ pages, excluding cover page.
- Project theme, topics
- Details and specific target, what to study, which topic to choose, what materials to study, etc
- Project planning and schedules
- Schedule to work
- Team roles: Recognize ethical and professional responsibilities in engineering team project
- An overview for your project plan
- Any progress by the time

(2) Progress Report (~ up to 10 to 15 pages) (30%)

- Main content development
- Base materials for final report preparation to be developed
- Many key contents to be roughly developed at this time

(3) Final Project Report (~ up to 15 pages) (50%)

- Team roles: Recognize ethical and professional responsibilities in engineering team project
- Introduction/Objective
- Problem statement and formulation
- Theoretical principles and Development: Acquire the relevant knowledge.
- Analysis: apply new knowledge as needed.
- Results and Discussion or new findings: making informed judgments from the results.
Discussion on the impact of the engineering solutions of the project in global, economic, environmental, and/or societal contexts
- Content completeness
- Overall report organization

(4) Final Presentation (~ Team presentation in class) (50%)

- Slide preparation
- Contents completeness
- Teamwork with professional responsibilities in engineering team project
- Presentation skills
- Communication skills with wide range of audiences in class
- Overall organization

* All Gradings are based on the overall performance of the project, including the contents, progress, completeness, complexity, level of understandings.

S3. Final Project Guideline

A. Team Size

1. Standard size of a team is **4 students**. (Three-member team acceptable for special cases only.)
2. Make your team with your choices or preferences.
3. Team role recommended:
 - **Coordinator**: team meeting coordination, meeting date/time/place coordination, meeting agenda coordination. Keep the project moving. etc. Keep the team on task and get involved. **Final project submissions.**
 - **Recorder**: meeting recording/minutes, sharing the meeting outcomes, etc. Project progress update, sharing the status of the project, etc.
 - **Monitor**: Checks to make sure everyone understands both the solutions, processes and strategy used to get it. **Final report guideline check.**
 - **Checker**: double-checks it before submission. **Final project double check.** (for three-member team role, Monitor and Checker are merged.)

***Note: All the project reports (planning, progress, final reports) MUST be submitted to Canvas by the same individual (ex. Coordinator) within the team, to avoid the cross-plagiarism over the series of report submissions. (However, any of you can send the report by email to me and TA for double confirmation.)**

B. Scope of Project Problem

1. Create your own problems from our real-life systems. For example, engine, engine cooling radiator, boiler, computer chip cooling, swimming suit, satellite, jet engine, etc
2. More creative or unique problem will have an advantage on grading.
3. Conduction, convection and/or radiation- a mixed problem is good for grading. The problem with at least two of heat transfer mode mixed is preferred for grading.
4. Real life heat transfer problem: problem description, model development, analysis, BCs, ICs, etc

C. Standard Project Guideline (Final project page limit: Max. 15 pages for Technical Narrative Sections)

General section:

1. Cover page: course name, team member information and roles, project title, submission date, etc
2. Abstract (~ 0.5 pg)
3. Role description of each team member in the project activities and developments of each section (~ 0.5 pg).
4. Table of contents - TOC (~ 1 pg)

Technical Narrative sections: (Maximum 15-pages limit)

5. Motivation, objectives, etc (~ 1 pg)
6. Introduction and background of the problem, (~ 2-3 pg)
7. Model development from a real system, model geometry, assumptions applied during the model development, etc: detail descriptions (2- 3 pg)

8. Background theory: detailed explanations of the fundamental thermal or heat transfer theory to be applied to the problem development and analysis. (2-3 pg)
9. Analysis: analytical or computational analysis, explanations of computational approaches, etc (2-4 pg)
10. Results and discussion: Not only showing figures, graphs, but also explaining and discussing them, etc (2-3 pg). more detailed discussion for better grading.

- The page numbers shown above are only for suggestions, not for a limit. However, the total page should be within 15 pages.

References and Appendix: (No page limit. These are not included in the limit of 15 pages.)

- i. References: Provide the detail information of each reference.
- ii. Appendix if any. (Materials that are less important and not included in the body section due to the page limit, can be attached here.)

D. Writing Format Guideline

1. **Page limit: maximum 15 pages**, excluding Cover page/Table of contents/General sections, References and Appendix.
2. Writing Format:
 - Letter size page,
 - 1-inch margin,
 - Font size 10.5 or 11 for body text, (Bigger font is OK for heading.)
 - Times New Roman, Calibri, or Arial font, (Bold or italic font acceptable for outlines or highlights.)
 - Single-spaced line.

*Note: Up to 30% loss if not following the guideline on writing format, page limit and proper sections.

E. Final Report Evaluation — Final project report evaluation guideline: out of total 100%.

I. General section: (10%)

1. Cover page: course name, project team members and roles, project title, submission date, etc
2. Abstract
3. Role description of each team member in the project activities and developments, with ethical and professional responsibilities in engineering team project.
4. Table of contents (TOC)

II. Technical Narrative sections: (80%)

5. motivation, objectives, etc (~ 10%)
6. introduction or background of the problem, (~ 10%)
7. model development, model geometry, assumptions, etc: detail descriptions (~ 10%)
8. theory: detailed explanations of the thermal or heat transfer theory applied to the problems, by acquiring the relevant knowledge and information. (~ 20%)
9. Analysis: analytical or computational analysis, explanations of computational approaches, etc, by applying new and relevant knowledge as needed, using appropriate learning strategies (~20%)
10. Results and discussion: Not only showing figures, graphs, but also explaining them, etc. Making informed judgments from the results. Discussion on the impact of the engineering solutions of the project in global, economic, environmental, and/or societal contexts (~10%)

* Note-1: The percentage of each individual section above is an example. The actual percentages may be subject to the development of the contents of the submitted project outcomes.

III. References and Appendix: (10%)

- A. References (Details of each reference MUST be provided in this section.)
- B. Appendix (Any materials not included in the body section due to the page limit can be attached.)

Example evaluation:

90% or more: strong background study, excellent model developments, in-depth analysis, conv/cond/rad mix-up problem, excellent results and discussion.

80% or more: Generally Good, may be a typical problem, generally good analysis, or results are generally good.

70% or more: Fair at many sections, typical problem, generally fair-to-weak analysis, results are generally fair.

60% or more: Weak overall, weak analysis/result/discussion, overall contents weak.

Below 60%: Poor overall, poor analysis/result/discussion, overall contents NOT complete.

* *Plagiarism check (Copy from other project reports, web sources, book sources, etc): Honor Code strictly reinforced.*

=> Copy from other reports or improper quotes will result in the critical loss (up to 100 %) in grading, depending on the level of plagiarism, with the report to the Office of the Dean of Students.

F. Final Presentation Evaluation: Final presentation evaluation guideline: out of total 100%.

Final Presentation (~ Team presentation in class)

- Slide preparation (20%)
- Contents completeness (20%)
- Teamwork with professional responsibilities in engineering team project (10%)
- Presentation skills (20%)
- Communication skills with wide range of audiences in class (20%)
- Overall organization (10%)

G. Submission Format and Due Date

1. Submission materials and Due Dates

- **Planning Report** (10/30. Wed. 6 PM) – pdf only
- **Progress Report** (11/20. Wed. 6 PM) – pdf only
- **Final Report** (12/13. Fri. 6 PM) – pdf only
- **Final Presentation** (12/11. Wed. 6pm) – either pdf or ppt

2. Canvas submission

- **Canvas submission** (Primary and MUST) – Upload **PDF** file only for report and **pdf or ppt** for presentation slides, to Canvas system ON TIME.

Note: Hardcopy submission (Secondary and optional):

– **Hand-in submission for Presentation slides and final report.**

Note: This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.

Note: If you have any questions, please email or contact me for clarifications.

S4. Project Progress Meeting

1. Objective: Project members can have an optional project meeting with the instructor of the class, to get a guidance and advices on the project and to have a discussion for a possible way of solution or progress to the completion of the project problem
2. Meeting time and arrangement
 - i. Meeting date: around the time frame in the middle of project formulation, development, or progress.
 - ii. Duration of the meeting: ~ typically less than 20 min/team.
 - iii. The slot (15-30 min) Before or After each class meeting may also be available on request for the project meeting if necessary.
 - iv. If a team needs other separate meeting time than around the class time, it needs to be arranged by the team coordinator through email with the instructor. Each team will internally communicate and decide the meeting time.
 - v. Team Coordinator is responsible for the communication with the team member and the instructor.
 - vi. Project progress materials should be emailed to the instructor at least one day before the meeting time, for the prior review.
 - vii. Meeting slots will be filled by a first-come-first-served basis through the email after the meeting slots will be posted on Canvas for your appointment.
 - viii. Key information should be included in every email communication:
 - Project title.
 - Team member name(s) and roles.
 - Short explanation of the project, with figures or images if available.
 - Question with One sentence explanation representing the question.
 - Further explanation or background information to be followed, if necessary.

S5. Exam Guideline for Onsite (& Remote video synchronous exam)

I. Exam requirements

- **Closed book, closed note:** No lecture notes or lecture materials allowed.
- **No Formula sheet** allowed. (Key Formula to be provided on question papers.)
- Key Formulas including relevant relations will be provided on the exam sheets.
- But, not all the formulas will be provided. For example, basic fundamental relations such as Fourier's law of conduction, Newton's law of convection, Stefan-Boltzmann's Law of radiation won't be provided. However, Stefan-Boltzmann constant value will be provided if it's relevant to the problem. Also, material properties or constant values will be provided.
- In conduction chapters, basic thermal resistance relation or concept such as 1-D linear relation in cartesian coordinate system will not be provided. (Cylindrical or spherical coordinate relation will be provided if it's considered.)
- In convection chapters, basic non-dimensional parameters such as Reynolds number relation ($\rho \cdot U \cdot D / \mu$), Prandtl Number relation (ν / α), Nusselt Number relation ($h \cdot D / k$), will not be provided on the problem sheet.
- In radiation chapters, basic relations such as Stefan-Boltzmann Law, Wien's displacement law, black body radiation, gray body radiation resistance relation, will not be provided.
- If you have any questions, please email or contact me for clarifications.
- No cellphone allowed during the exam.
- No computer use (no keyboard/mouse) allowed during the exam, for online exam.
- Pen, eraser, simple calculator only (Reset before the exam. No internet, No Wi-Fi/Bluetooth.) allowed.

II. Below is for Remote Video Synchronous Exam Case only

- **Blank sheets for your answer to be prepared and put on the desk.**
- Your working desk needs to be clean except for the allowed above.
- **Mouse/Keyboard/Electronics should be away from the working area during Exams.**

1. Video setting requirements: (Online Exam Cases only)

- **Video setting:** Video camera must be **set to capture** the followings **all the time** during the exam.
 - : your face,**
 - : both hands,**
 - : your working desk area,**
 - : your answer sheets.**
- Be careful of both of your hands: Don't get any of your hands out of the screen during the exam!!!
- Remove all the other papers or materials from the desk and clean out your desk's working area.
- Problems will be shown on your screen through online.
- Screens should be optimized before the start of the exam.
- Strongly recommend using a **separate webcam** at a distance from your desk to capture all the view.

2. How to raise your Questions during Exam?

- Raise your hand for questions, and wait until I give you a chance to ask questions.
- **Do NOT use any mouse, computer or electronic devices until you are told to do so, during Exams.**

3. Protocols for Submission of the answer sheet. (Online Exam Cases only)

- **During the whole submission process including scanning, filing and uploading, video camera must be kept turned on, with all scenes being continuously monitored.**
- No more writing nor pencils allowed to use, after the time-up of the exam.
- Scan your answer sheets and combine one single pdf file.
- Upload the file to the Exam link. (Link will be activated for uploading at the time, like the same way as other assignments.)

- Uploading time is fairly limited within a few minutes after the end of the exam.
- Late submission after the closure of the online proctoring will not be accepted for grading, and be going to be zero point. (Be familiar with the scanning/imaging/uploading process).

Again,

- Clean out your desk except for the allowed materials.
- Be sure to check all the settings before the start of the exam.
- All the other materials than the allowed materials above is going to be considered as cheating.

This is the requirement to be eligible to take the quizzes/exams over the online mode.

Please be ready and set your video before Exams.

S6. NJIT Honor Code

**NJIT Honor Code is strictly enforced
over the course of all the activities including HWs, EXAMs and
Projects.**

****** NJIT Honor Code – Strictly Enforced******

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

“Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu”

This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.