Concepts Section Learning Objectives

1) Engineering Design Process

- Formulating the problem
- Implementing a solution
- Using Quality principles

2) Working in Teams

- Team dynamics
- Team communication
- Social norms
- Conflict management

3) Engineering as A Profession

- The profession
- Selection of a major
- Professional ethics

4) Planning For Success

- Learning to learn
- Assessment of progress
- Time management

ME 2101-3 CONCEPTS FIRST DAY MATERIALS yellow

This package of materials is intended to help you get started in the Concepts Session of ME 2101-3. The package contains material addressing Concepts Expectations, Assignments (with schedule), Assessment, Resubmission of Work, Concepts Grade, and Academic Integrity.

Concepts Session Expectations

The expectations for the Concepts Session of ME 2101-3 are listed below. **Meeting Customer Expectations is a characteristic of Self-Regulated Learners** (one of the 5 Course Objectives for ME 2101-3.) We expect that each student will:

1. Complete the assigned readings before class (see ME 2101-3 Course Calendar).
2. Attend and be on time for the scheduled class meetings.
3. Actively participate in all learning activities and tasks.
4. Treat your classmates with respect
5. **Avoid disruptive behaviors** in class (e.g., side conversations, sleeping, working on homework assignments for other classes, etc.) (see Section 4 of the First Day handout)
6. Sign the Concepts attendance sheet before each class begins
7. Meet or Exceed Expectations on all the work products (i.e., quizzes, etc.).
8. Improve all work that is assessed as Needs Improvement, No Credible Effort, or No Submission.
9. Submit a Problem Solving/Reflective Writing Assignment to remove ONE defect (optional).
10. Return class handouts as requested. If you take or deface handout materials that you were requested to return, you will be assessed a Self Regulation Lapse.
11. **Retain** all of your work for the Concepts session in the **concept folder.** All of the teamwork for the concept session must be kept in a Team Concept folder that will be collected by the instructors at various times during the semester. More information about the folder is in the associated checklist.
12. **Always review your grades as it is announced by the instructor.** If the announced grades are ever in error (25 students × 10 quizzes + Journals + Homework ... etc. = a lot of opportunity for data entry errors!), you will need to have your original work to verify your actual grade.

Concepts Assignments

The Concepts section of the course is intended to introduce you to the major ideas that you will use in the Laboratory section, where you will practice using them on actual design projects. We use quizzes given in nearly every session to ascertain whether you have understood the material in your pre-class reading assignments. In addition, we encourage students to write brief reflective journal entries to 1) further solidify and reinforce their own understanding, and 2) demonstrate that improved understanding for an improved Quiz grade. (Well-done Journal Entries can lead to an improved Concepts Grade, section on Assessment).

ME 2101-3 CONCEPTS FIRST DAY MATERIALS yellow

The Concepts assignments and information can be found in the ME 2101-3 CD /google drive provided to you. You will want to print and keep these assignments.

The assignment and quiz schedule is shown on the Course Calendar. A condensed version of the assignment and quiz schedule is shown in Table 1. You will want to study this schedule and make sure you are prepared for each Concepts Session.

All work products must be submitted to the instructor, grouped by teams, during the first 10 minutes of the due session.

Assessment of Work Products

There are two types of work assessed in Concepts: your quizzes and your written material. As is true for all work in ME 2101-3, your work will be assessed as Exceeding Expectations, Meeting Expectations, Needing Improvement, No Credible Effort, or Not Submitted. Your quiz assessment is based on the number of questions you answer correctly and whether you submitted an acceptable Engineering Journal (see the section title Quiz Information for more material on Journals). The relationship between correct answers, journals and expectations is shown in Table 2. The influence of the Engineering Journal is clearly shown. If you submit an acceptable Journal, you can get an Exceeds on a quiz even when you only have 80% of the answers correct. In comparison, the only way to get an Exceeds on a quiz if you do not do an acceptable Engineering Journal is to answer all questions correctly.

All written material (Journals, Quiz Make-ups, Quiz Corrections, Tutorial Materials, Defect Removal) will be assessed using checklists. You can print all the checklists for all the written assignments from the course ME 2101-3 CD provided to you. You will find a separate file for each checklist.

You are expected to include a checklist with each written assignment you submit. You are expected to follow the instructions on each checklist concerning the need to self assess (i.e., fill out) the checklist before submitting (most work is self assessed). The checklist should be the top page of all written assignments.

Resubmission of Work

With the exception of your Engineering Journals all work that is initially assessed as Needs Improvement (NI), No Credible Effort (NCE), or No Submission (NS) may be resubmitted for re-assessment. The dates for resubmission are shown in Table 1. You will get one Self Regulation laps if re-submission is delivered within one week from its due date. ***No re-submission is accepted after one week of its due date.***

You are expected to Make Up all missed quizzes and to improve all Quizzes that are assessed as (NS/NCE) or (NI) by submitting a Quiz Make-up or Quiz Correction Assignment. These submissions, if assessed as Meeting expectations (exceeding is not an option), will result in your quiz assessment being changed to Meets.

ME 2101-3 CONCEPTS FIRST DAY MATERIALS yellow

Table 1: Concepts Assignments Schedule by Session

Assignment ŦŦ	Session Due	Session Returned	Corrections/ Make-up due on**
Assignment **C1** – Engineering the Profession	Session C_2_1	Session C_3_1	Session C_4_1
Quiz #1 on Grades/Assessment	Session C_2_1	Session C_3_1	Session C_4_1
Quiz #2 on Chapter **1** and Sections **B** and **E** of the Blue Workbook	Session C_2_2	Session C_3_1	Session C_4_1
Quiz #3 on Chapter **2**	Session C_3_1	Session C_4_1	Session C_5_1
Quiz #4 on Chapters **3**	Session C_3_2	Session C_4_2	Session C_5_1
Quiz #5 on Chapters **4**	Session C_4_1	Session C_5_1	Session C_5_2
Quiz #6 on Chapter **5**; Sec **5.1** and **5.3**	Session C_4_2	Session C_5_1	Session C_5_2
Quiz #7 on Chapter **5;** Sec **5.2** and **5.4**	Session C_5_1	Session C_6_1	Session C_6_2
Quiz #8 on Chapter **6**	Session C_5_2	Session C_6_1	Session C_6_2
Quiz #9 on Chapters **7**	Session C_6_1	Session C_6_2	Session L_6_2
Quiz #10 on Section H of the Blue Workbook	Session C_6_2	Session L_6_1	Session L_6_2
Assignment **C2** – LOL & DOI (to be announced C-6-1)	Session C_6_2		
Assignment **C3** - Defect Removal	TBA		

ŦŦ All work products must be submitted to the instructor, grouped by teams, during the first 10 minutes of the due session.

** You will get one Self Regulation Laps if **re-submission** is delivered within one week from its due date (whether it meets expectations or not). No re-submission is accepted after one week of its due date.

Quiz Information

Why do we have quizzes?

Quizzes are given to:

1) encourage you to complete the assigned reading before class;
2) enable you and the instructor to evaluate your knowledge of the important concepts before they are presented in class;
3) focus your attention on, as well as refresh your recollection of, the topics to be presented in the class; and
4) provide an opportunity for you to reflect on what you have learned.

The Quizzes require you to **recall** material from the assigned reading, **define** technical terms or conventions, **name** classes, sets, divisions, and arrangements, **list** criteria, etc.

What is the Quiz Process?

Taking the quiz is generally a first-class activity. When you arrive at your team table you may find a Quiz Envelope on the table or the leader may pick it up from the instructor table. You are not to open the envelope until told to do so by the course instructor. Inside the envelope you will find a set of five quiz question sheets. You will always take the same quiz sheet number based on your team member number. The quizzes are closed book and closed colleagues. Hard copy or electronic dictionaries are allowed. Remember; mobiles are not allowed in class by any means. Dictionaries installed on LAPTOP are not allowed too.

A typical quiz has 10 multiple choices or true/false questions taken from the reading material. The wording for most questions comes directly from the reading. You must select the **best answer** to each question on the Quiz. Learning to select the best answer to a question or the best solution to a problem is an aspect of one of the 6 course objectives; i.e., develop and demonstrate the behaviors of effective problem solvers.

You will answer the quiz questions on your Quiz form. Also, you will complete the checklist of this quiz and post it to the quiz sheet. When you have finished you will put the quiz questions with their checklists back into the team folder. The team leader has to submit the envelope to the instructor within 30 seconds from the end of the quiz 10 minutes.

Failure to follow this step will result in you receiving a Self Regulation Lapse. You will have 10 minutes to complete the quiz and 30 seconds to get the team folder back to the instructor's table.

Table 2: Quiz Performance Assessment Specifications*

Quizzes (10 - 20 Questions)	Submitted a Journal that Meets Expectations	Quiz Grade
Answered 80 to 100 % of the questions correctly	yes	E
Answered 70 to <80 % of the questions correctly	yes	M
Answered 40 to <70% of the questions correctly	yes	NI
Answered less than 40% of the questions correctly	yes	NCE
Answered **all** questions correctly	no	M
Answered 80 to <100 % of the questions correctly	no	M
Answered 40 to <80% of the questions correctly	no	NI
Answered less than 40% of the questions correctly	no	NCE
Absent**	--	NS

* If you do not fill out the quiz checklist on time your quiz will be accepted but you will be assessed a Self-Regulation Lapse

** *Students who miss the concept session will not be permitted to complete the Quiz at-home*.

Quiz Grade Legend

E	Exceeds Expectations
M	Meets Expectations
NI	Needs Improvement
NCE	No Credible Effort
NS	No Submittal

How is Quizzes Assessed?

Two items are considered in arriving at your quiz assessment. The Concepts instructors/graders will:

1) assess your Engineering Journal (see below) if done, and
2) determine the number of quiz questions you missed.

Based on the results of these two assessments your final quiz assessment will be determined as shown in Table 2 and entered on your quiz checklist. Notice that doing a journal allows you to miss more questions and still get an Exceeds or Meets on the quiz.

How Should I Prepare for a Quiz?

The course instructors recommend the following three-step procedure for preparing to take a quiz.

Step 1: (suggested) Read the assigned material quickly to get an overview of the topic. Then, re-read the material more deliberately, highlighting definitions of terms and concepts in the text as you study the reading material. Make certain that you understand both the **context** and the **content** of the reading assignment.

Step 2: (**optional** but strongly suggested[1]) Prepare an Engineering Journal (discussed below) and the Engineering Journal Entry Checklist. The Engineering Journal may be written in Arabic or English and should be hand writing, neat, and will organized..

Step 3: (**required**) Print the quiz checklist for the quiz you are about to take. Complete the top line of the checklist.

What is an Engineering Journal?

The purpose of the Engineering Journal in Concepts is to encourage you to develop the habit of not only reading the assigned material before class, but also **reflecting** on the concepts in each assigned reading. This reflection might include (among other things)

- a summary, in your own words, of the important concepts in the material and why they are important,
- a list of questions about concepts or other items in the reading that were unclear to you,
- a personal description of potential applications of the material to your own life,
- a description of your own experience relevant to the material in the reading,
- a comparison and contrast of the reading material to other material in this or other courses.

A simple restatement of the important ideas in the reading would not meet expectations for a reflective journal entry; your own understanding and thinking must be evident. Since a successful (i.e., 'Meets') journal demonstrates understanding of the material, it is, in effect, 'extra credit' work for a quiz, and offsets three or less incorrect quiz answers.

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[1] Rigorous statistical analysis of data from previous semesters shows that students who successfully complete a journal assignment miss fewer questions on the quiz and get higher assessments (i.e., fewer NI's and more Exceeds).

Engineering Journals must be submitted with a completed (i.e., self-assessed) Engineering Journal Checklist. **If your Engineering Journal entry does not meet expectations, there is no penalty,** other than the lost 'extra credit' on that quiz. In other words, all that is risked by submitting an Engineering Journal entry is the time it took to prepare it; what you can gain is both an increased understanding of the material and a potentially better grade on your quiz. Engineering Journals cannot be resubmitted if they are assessed as NI.

Sample Engineering Journal

Mohamed Ali Ibrahim
44400265
Grades and Assessment Quiz

Team 2
Member 5
12/10/1445

Context (<u>the word context is optional</u>)

This journal will be used in preparing for the next Concepts Quiz which is on Grades and Assessment. When I complete this work product, I will have reviewed and reflected upon the important elements of Grades and Assessment in ME 2101-3. Preparing this work product is part of an effort to improve the way I prepare for class; reading the material, reflecting upon it, and summarizing the important concepts before the material is revisited in class will improve my learning.

Reflection on "<u>Grades and Assessment</u>"

In this course, the instructors seem to call "grading" "assessment". I'm not sure yet what the difference is, although the grading scheme is certainly nothing like I've ever encountered before. As far as I can tell, it seems that no matter how much work I put into an assignment, if only one thing is wrong with it, it will not pass, or "meet expectations". It also seems that even if I get perfectly correct assignments, I will not get an A in the course. On the other hand, I can make mistakes without it really costing me on the grade, as long as I fix my mistakes.

Although I've never encountered this in a class before, I **have** had experience with a system like it in my martial arts training. When performing a technique, my martial arts instructor has never let me go one to the next level just because I tried hard; I've always had to reach an acceptable level of performance before progressing. Another thing that's like this grading system, is that my martial arts instructor has always encouraged me to "exceed" merely acceptable performance.

In an additional attempt to understand this system, I questioned an engineer recently graduated in order to get his opinion. He told me that although he wasn't sure he liked the ME 2101-3 system, it **did** get him to do all of his work thoroughly and prepared him for how he is evaluated in his job now.

In summary, I expect that it will take some time to get used to this system of grading, but I should be able to get at least a B if I don't give up.

Discussion

I reflected upon and really tried to understand the ME_2101-3 "Assessment" system. As a result, I feel I am better prepared both to take the quiz on these materials and to achieve a good grade in the class

<u>(Note that a completed and self-assessed journal checklist must be submitted stapled to the front of the journal entry</u>)

What do I do if I get an NI, NCE, or NS on a Quiz?

Getting an NI, NCE or NS on a quiz means you did not demonstrated mastery of required material on your first opportunity and you will need a second opportunity to demonstrate your mastery. What second opportunity you do depends on whether you got an NI or and NCE/NS on the quiz. If you got an NI you should do the Quiz Correction Assignment; if you got an NCE/NS you should do the Quiz Make-up Assignment.

Quiz Correction Assignment

If your Quiz was assessed as Needs Improvement (**NI**), you can submit corrections to the questions you answered incorrectly to improve the **NI** to Meets Expectations. Quiz Corrections must meet the specifications listed below and be submitted on the date specified in the Course Calendar (or see Table 1 in the yellow first day materials).

Attach (staple) the Quiz Corrections Checklist as a cover sheet; also attach (staple) your original Quiz FORM and Checklist at the **end**. Include your name, your TU-ID NUMBER, Chapter or Quiz topic, date, team and team member number at the top of your **word-processed** corrections work product. Do not include an Engineering Journal Entry with Quiz Corrections. The assignment should be prepared using the Presentation Sandwich structure and you are expected to self assess the work (i.e., completely fill out the quiz correction checklist).

The correction process we use is based on educational research[1] which suggests that to learn and integrate new material, you must resolve conflicts between what you **initially thought** was correct and what you **now know** to be correct. We use the process below to help students understand why an initial answer was incorrect and to enable students to answer the question correctly in the future.

For each question that you answered incorrectly, write a brief but complete paragraph:

1. explicitly state the correct answer as a **true statement** [e.g., *"Quality leadership does **not** require that all customers be treated the same."*].

The Quiz assessment will be changed to Meets Expectations if the Corrections meet these specifications. A sample quiz correction assignment is given on the supplied ME 2101-3 drive.

[1] Mestre, Jose P., *Cognitive Aspects of Learning in Science*, Chapter 3 of a report prepared for The Division of Research, Evaluation and Dissemination, Directorate for Education and Human Resources, National Science Foundation, Washington, D.C. 20220, (TDD: 703-306-0090, NSF 94-80), February, 1994.

Quiz Make Up

Quiz Make-ups are done when you get an NCE or NS on your quiz. A successful completion of a Quiz Make-up assignment demonstrates material mastery and will result in your *final* quiz grade being changed from NCE/NS to M. Quiz Make-up must meet the specifications listed below (and detailed on the Quiz Make-up Checklist) and be submitted on the date specified in the Course Calendar (or see Table 1 in the yellow first day materials).

For each question on the Quiz you must:

1) restate the question;
2) indicate the **letter** of the correct answer and state the correct answer as a true statement;
3) cite the page in the course textbooks, or other appropriate source where you found the correct answer,
4) prepare an **Engineering Journal entry for the quiz Chapter or topic (including the Journal Checklist),** and
5) the work must satisfy the Presentation of Technical Work Sub-checklist.

The entire Quiz 'Make-Up' assignment (but not the journal) **must be word-processed**. When you have completed the assignment, it should be stapled together in the following order:

1) The Quiz Make-up Checklist
2) The Quiz Make-up assignment
3) The Journal checklist
4) The Journal

A sample quiz Makeup assignment is given on the supplied ME 2101-3 drive.

Resubmission of Work

As indicated in the white first day materials, you may resubmit work (e.g., quiz correction) which is initially assessed as NI, NCE or NS for reassessment. Table 1, in yellow Concept's first day materials, gives the due date for the resubmission.

All re-submissions of work must include the Resubmission Checklist, which explains the details of how to prepare the resubmission. The Resubmission Checklist can be found in the ME 2101-3 CD.

Concepts Grade

Your grade in Concepts is a function of the number of Exceeds you get, the number of NI's, NCE's, or NS's around the end of the semester, as well as the number of Self-Regulation Lapses you have accumulated during the semester. The relationship among these various items and your Concepts grade is shown in Table 3. To get an A you must have 3 or more exceeds and NO Defects (e.g., no outstanding NI's or NS's, no more than 3 Self Regulation Lapses). You can see the heavy negative impact of never doing an assignment (i.e., one NS still around at the end of the semester will give you 2 Defects, which limits your Concept grade to at best a D).

Concepts Section Cheating Standards

Over the course of the semester, you will be completing Quizzes, possibly Quiz Corrections and/or Make-ups, and possibly an optional Defect Removal assignment. All work must be your own, whether in-class Quizzes or out-of-class Corrections, Make-ups, or Defect Removal. The College of Engineering policies and procedures will be implemented to address any case of suspected cheating, no matter how minor, again **no matter how minor**.

Table 3: Concepts Session Grade Specifications

Quality of Work	Defects	Concepts Grade
Total Number of Exceeds	Total Number of Defects	
3 or **more**	0	**A**
fewer than 3	0	**B**
---	1	**C**
---	2	**D**
---	**3 or 4**	**F**
5 or more defects results in course grade of FAIL		

The 'Defects' are defined below; the impact of the 'defects' on your semester grade represents your customer's sense of the relative importance of you demonstrating the characteristics of a Self-Regulated Learner. The 'defects' are **cumulative**.

Cognitive Problems	**Number of 'Defects'**
1. **one** (final assessment of) No Submittal or No Credible Effort	**2**
2. **two (2) or more** (final assessments of) No Submittal or No Credible Effort	**3**
3. **two** (**2**) (final assessments of) Needs Improvement	**1**
4. **three** (**3**) **OR** four (**4**) (final assessments of) Needs Improvement	**2**
5. **five** (**5**) **OR more** (final assessments of) Needs Improvement	**3**
Affective Behavior Problems (self regulation issues)	
6. **four** (**4**) OR **five** (**5**) Self-Regulation Lapses †	**1**
7. **six** (**6**) or seven (7) Self Regulation Lapses †	**2**
8. **eight** (**8**) **or more** Self Regulation Lapses †	**3**

†Self Regulation Lapses include but are not limited to: absences, lateness to class**, Late submission of resubmitted work (only within one week from due date), not participating in class activities, being unprepared for class, disruptive or unethical classroom behaviors, failure to cooperate with in-class instructions, minor inappropriate use of TU facilities and property, a NS or NCE on an assignment, and not submitting appropriate checklist for a work product. Behavioral expectations are explicitly stated in section 4 of the white First Day materials.

** Each occurrence of "lateness to class" will be counted as half (0.5) self-regulation laps.