12-100 Intro to CEE	HW 2: Precedence, Gantt Charts, & SPR		9/8/21

Homework 2: Precedence, Gantt Charts, and SPR Grade Sheet:

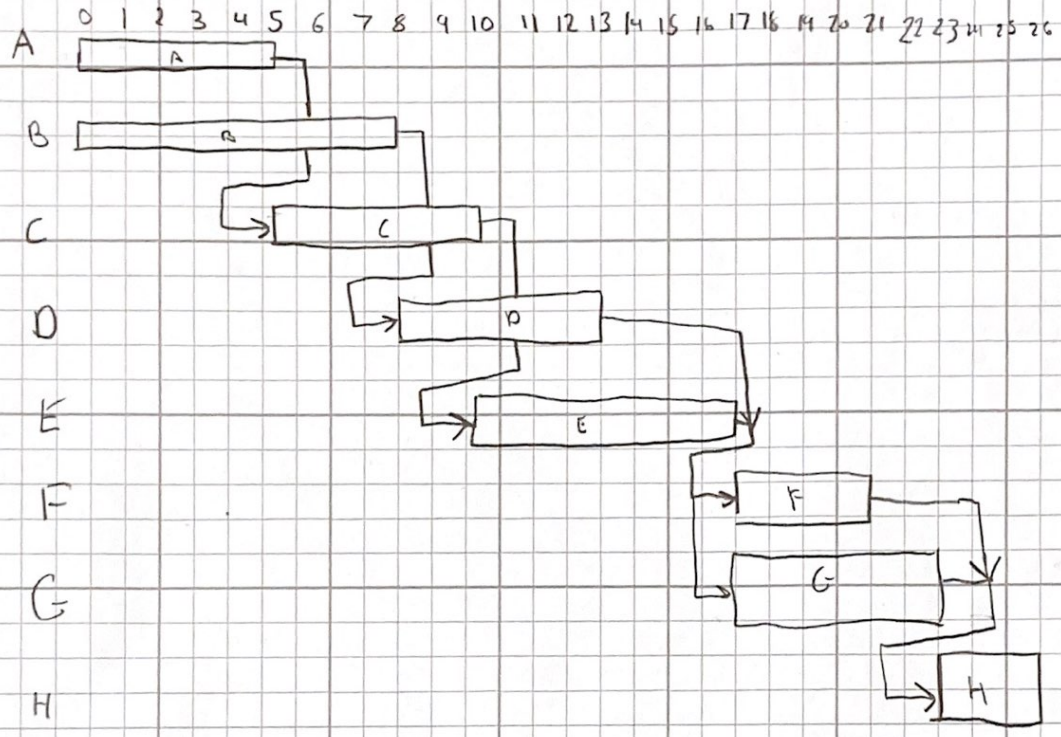
Name: _____ Score:_____

Presentation		**10 points total**
This sheet stapled to front of assignment	1	_____
Name, date, assignment # on every page	1	_____
Clarity and neatness of presentation	4	_____
Overall engineering presentation	4	_____
Problem 1		**25 points total**
Gantt Chart	10	_____
Identify critical path	5	_____
Project duration	5	_____
Tasks with float	5	_____
Problem 2		**20 points total**
Gantt Chart	10	_____
Identify critical path	5	_____
Project duration	5	_____
Problem 3		**20 points total**
Cycle time	8	_____
SPR in CY/day	8	_____
Soil volume per day	4	_____
Problem 4		**25 points total**
Cycle time	5	_____
No. of trucks for shortest time	10	_____
No. of trucks to complete in 8 hours	10	_____

EEWeb

TITLE	12-100 HW # 2 (pg. 1)	
NAME	Arda Alcinci	DATE 1/27/2022

1.)



b.) CRITICAL PATH: A - C - E - G - H

c.) The total project duration is 26 days

d.) Floats

F can be delayed 2 days

D can be delayed 6 days

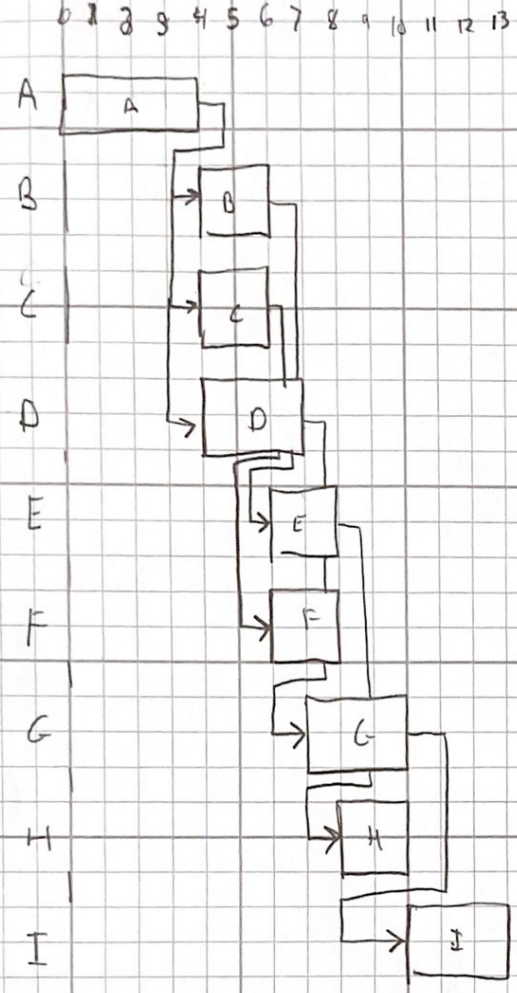
B can be delayed 6 days

EEWeb

TITLE	12-100 HW #2 Pg (2)	
NAME	Arda Akinci	DATE 1-28-2022

2.)

a.)



b.) Critical Path: A - D - G - I

c.) 13 days is the duration of the project.

EEWeb

TITLE	12-100 HW # 2 pg 3	
NAME	Arda Alemci	DATE 1-28-2022

3.) Load Time = 17 minutes

Travel Time = $\frac{12 \text{ miles}}{30 \text{ miles}} \mid \frac{\text{hr}}{1 \text{ hr}} \mid \frac{60 \text{ minutes}}{1 \text{ hr}} = 24 \text{ minutes}$

Unload Time = 12 minutes

Cycle Time = L + T + U + T

= 17 mins + 24 mins + 12 mins + 24 mins

= 77 mins

SPPR = $\frac{\text{Volume}}{\text{cycle time}} = \frac{6.0 \text{ CY}}{77 \text{ mins}} \cdot \frac{60 \text{ mins}}{1 \text{ hr}} \mid \frac{8 \text{ hr}}{1 \text{ day}} =$ **37.4 CY/day**

b.) **36.0 CY**, consisting 6 full cycles

EEWeb

TITLE	12-200 HW # 2 Pg 4	
NAME Arda Akmc		DATE 1-28-2022

4.) L = 16 mins

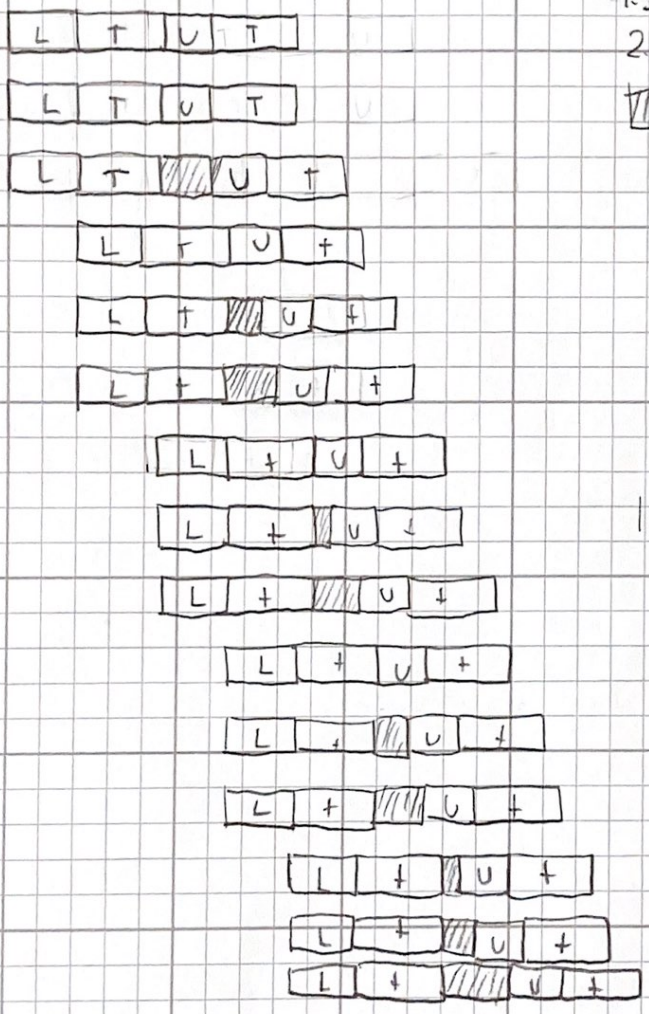
U = 12 mins

T = 20 mins

$T = \frac{10 \text{ miles}}{30 \text{ miles}} \left| \frac{\text{hr}}{1 \text{ hr}} \right| \frac{60 \text{ mins}}{} = 20 \text{ mins}$

Cycle: 68 mins

- 3 trucks per Load
- 2 trucks per unload
- 15 total units



= 8 mins

2 blocks → Load

1.5 blocks → unload

2.5 blocks → travel

= hold

12 trucks to complete the job

16.5 blocks → 132 min until the last truckload of soil is unloaded

152 min for last truck to be back at loading site

EEWeb

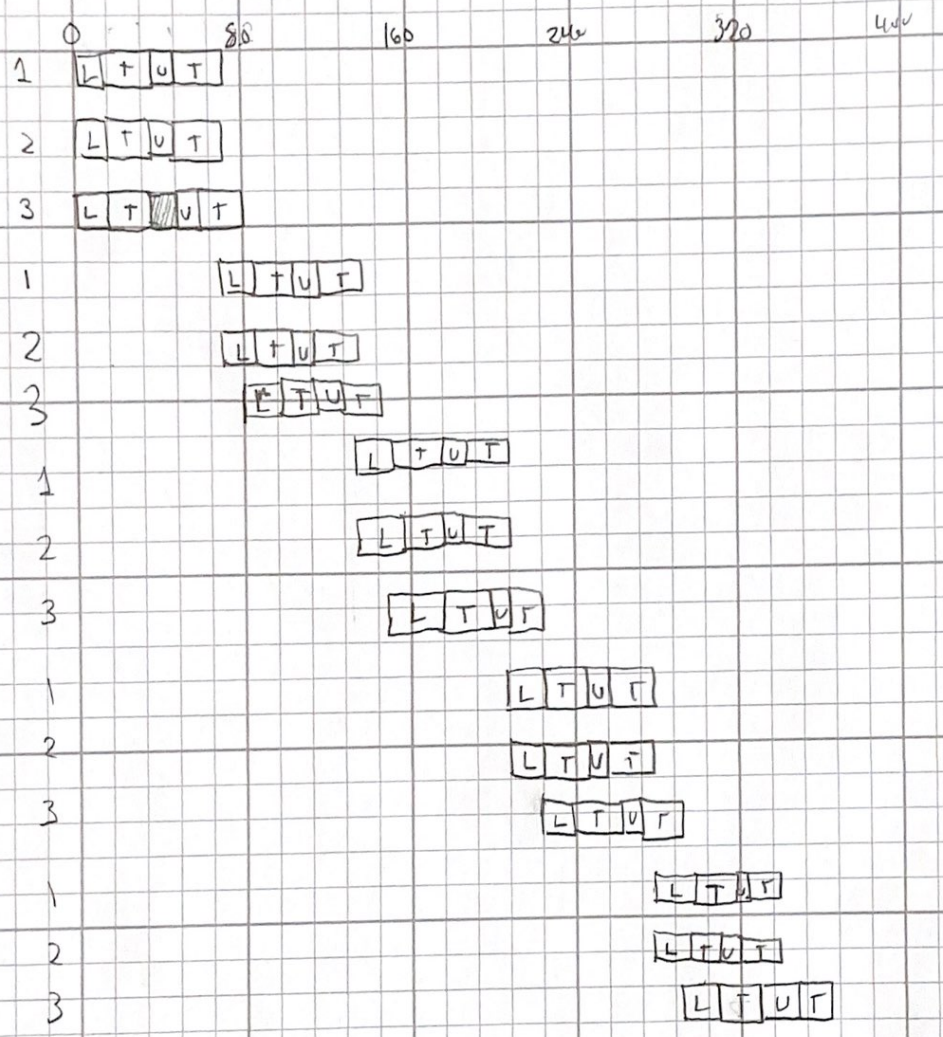
TITLE 12-100 (pg. 5)

NAME Arda Akinci DATE 1/28/2022

4b.) $\frac{40\ KY}{6\ CY} \frac{1\ cycle}{} = 15$ cycles to finish

□ = 16 min

▨ = hold



The last truckload will be dropped at ≈ 322 min

The last truck will go back at ≈ 352 min