

Military Technological College		Coursework: Individual Report (<i>Output from Primavera P6</i>)	
Department: Civil Engineering And Quantity Surveying			
MTCC5060: Construction & Contract Management (MTCC5056)	Date Set: TBD	Lecturer:	Kaisar Jamal Mallick
Artefact: 1 of 2	Contribution: 40%	Due Date: TBD	

Plagiarism

Please be aware that any form of academic misconduct (including plagiarism and cheating) will be dealt with according to the [MTC Academic Integrity and Misconduct Policy](#). Students must submit their own original work and where required, referenced appropriately so as to avoid penalties. When referencing the work of others, please refer to the [MTC Referencing Guide](#).

Hand in:

Submit your report via the Turnitin link on Moodle before 23.59 on the due date to be disclosed.

Aims:

The aims of this coursework are:

- ✓ To develop students' skills required to plan, manage and control projects from initiation to closure including the use of project management software.

Module learning outcomes assessed by this coursework:

On successful completion of this assignment, students will be expected, at threshold level, to be able to:

- ✓ LO 5, plan and schedule construction projects manually and with the aid of relevant software packages.

Background

In a global review of literature on causes of construction delays, ineffective planning and scheduling was found to be the 3rd most significant cause of construction delays. In the Sultanate of Oman, ineffective planning and scheduling was found to be the most important cause of delays (Alnuaimi & Mohsin, 2013). Other studies carried out within the Gulf Cooperation Council (GCC) countries found that ineffective planning and scheduling is ranked among the top five causes of delays in Kuwait (Al Bogamy et al., 2012); Qatar (Emam et al., 2015); Oman (Oyegoke & Al Kiyumi, 2017), UAE (Mpofu et al., 2017); and Saudi Arabia (AlMutairi, 2016). This high ranking of ineffective planning and scheduling underscores the importance of planning and scheduling skills.

Task:

To this end, you have been provided with details in a sample Bills of Quantities (BoQ) along with information on the duration of each activity along with cost values. You are required to do the following:

1. Prepare a baseline **Primavera P6** schedule of all work items in the BOQ using only **finish-to-start relationship**
2. Resource the **Primavera P6** schedule using the cost data in the attached BoQ.
3. Prepare a Fast-track (shorter) alternative **Primavera P6** schedule for the client using the **fast-track approach** to be completed within the earliest possible time applying all available activity relationships (FS,SS,SF,FF) types.
4. Submit both baseline and Fast-track (shortened) schedules with their associated cost reports in a SINGLE pdf.
5. Explain what will happen to the schedule if a four-day work week calendar were used in place of the normal Six-day work week calendar for **both** the **regular schedule** and the **fast-Track schedule**.

Equipment:

N/A

Procedures:

The report needs to be structured to cover the following points:

- Plan and schedule construction work manually and with the aid of relevant software packages.
- The word limit for this assignment is **1500** words for Individual laboratory report that includes the outputs of construction software. If the word limit is exceeded any work beyond the word limit will be assessed based on the merit and importance of inclusion.
- Please ensure that your submissions are clearly typed (not handwritten) with 12 Arial fonts for content of the course of assignment, subheadings with 12 Arial bold fonts and headings with 14 Arial bold fonts (Font colour BLACK). Templates for course assignment are available in our Moodle.
- Please write your Student Number on the attached cover page. ANY OTHER IDENTIFICATION WILL INVALIDATE YOUR PAPER. Cite all sources and be consistent in the method by which you cite (e.g. footnotes, endnotes,) A list of references does not count against the pages threshold. All written reports shall contain your student number and page number in the header of page. (Standard Template of Report will be provided)
- Please note that it is your responsibility to ensure that your submission of your report via Turnitin link on Moodle before the due date mentioned above.
- Please send your submissions electronically in PDF format.

Assessment Components

Individual student shall have the 100% marks for report write up. Weightage 40%

LO #	Assessment Component	Weight
3	Prepare a baseline Primavera P6 schedule of all works using only finish-to-start relationship	25%
3	Resourcing the Primavera P6 schedule including application of appropriate costs	25%
3	Prepare a shorter alternative Primavera P6 schedule for a client that requires the works ' fast-tracked ' to be completed within the earliest possible time using all available activity relationships (FS,SS,SF,FF) without increasing the costs.	30%
3	Impact of four-day work week on the regular and fast-track schedule include the output schedules for the 4-day work week as evidence.	20%

Reading / References:

The Module teaching notes issued to students by the course team at the start of the Module.

Other References: as noted in the module descriptor

Notes:

- The assignment is worth 40% of the total module mark.
- Further guidance will be given during taught sessions.
- Deferred / Second Attempt assessment method is mentioned as described in module descriptor.
- MTC committed to keeping up with high standard of academic honesty and integrity among the students by dealing pro-actively with cases of all forms of plagiarism. Please click the [MTC Academic Integrity and Misconduct Policy](#) for your reference.
- Retrieval of failure will be as detailed in the Module Descriptor

Method of feedback to the students: Feedback will be provided to the student using following methods; place a (X) as appropriate.

<input type="checkbox"/>	The software model will be submitted through Moodle Turnitin and a manual copy to the instructor. Feedback will be provided through an assessment sheet only.
<input checked="" type="checkbox"/>	The software model will be submitted through Moodle Turnitin and feedback will be through the Moodle Turnitin only.
<input type="checkbox"/>	This coursework software model is submitted manually. Feedback will be provided through the Assessment sheet only.

The Military Technological College regulations require students to keep electronic copies of all assignments, and submit these at any time upon request.

Date of submission: tbc						
Student Number:						
Assessor / Second Marker:		% Mark				
Assessment Component	Fail (0-39%) (Range of marks available)	Pass (40-49%) Threshold	Good (50-59%)	Very Good (60-69%)	Excellent (70-100%)	Mark awarded
Baseline schedule	Irrelevant to very poor articulation of possible solutions to the problem.	Adequate baseline schedule. A fair logical relationship between activities.	Good baseline schedule. Good logic in activity relationships.	A very good baseline schedule. Very good logic in activity relationships.	Excellent baseline schedule. Excellent logic in activity relationships.	Maximum available marks (25)
Baseline schedule Resources reports	Poor resource reports without meaningful information useful for the project at hand.	Adequate resource reports with adequate information for the project at hand.	Good resource reports with adequate information for the project at hand.	Very good resource reports with adequate information for the project at hand.	Excellent resource reports with adequate information for the project at hand. All tasks are assigned required resources	Maximum available marks (25)
'Fast-track' schedule	Irrelevant to very poor articulation of possible solutions to the problem.	Adequate 'Fast-track' schedule. A fair logic exists between the activities. But some hanging activities exist.	Good 'Fast-track' schedule. Good logic exists between the activities, but a few hanging activities exist.	Very good 'Fast-track' schedule. Good logic exists between the activities. No activities hanging	Excellent 'Fast-track' schedule. Innovative and realistic logic exists between all scheduled activities with maximum use of available floats/lags.	Maximum available marks (30)
Impact of four-days' work week	Irrelevant to very poor articulation of impact.	Adequate explanation of impact.	Good explanation of impact with evidence.	Very Good explanation of impact with evidence.	Excellent explanation of impact with additional schedule as evidence.	Maximum available marks (20)

Ref.	Description	Qty	Unit	Duration	Rate
	Substructure				
	All Provisional				
	<u>D20 EXCAVATING AND FILLING</u>				
	<u>Excavation</u>				
A	Excavate to remove vegetable top soil for preservation	560	m ²	5	OMR1.6/m2
B	Excavate trench for foundation footing starting from stripped level; depth exceeding 2.50m	92	m ³	9	OMR3.5/m3
C	Level and compact bottom of excavation to receive concrete	200	m ²	4	OMR0.85/m2
D	Prepare and apply "DELDREX" anti-termite treatment to sides and bottom of excavations	556	m ²	2	OMR1.25/m2
E	Earthwork support to sides of excavations exceeding 0.3m between opposing faces and average depth not exceeding 2.50m	356	m ²	12	OMR2.85/m2
	<u>Disposal</u>				
F	Dispose off site surplus excavated materials.	40	m ³	6	OMR1.65/m3
	<u>Selected excavated material</u>				
G	Filling to excavations over 250mm average thick obtained on site spoil heaps	120	m ³	4	OMR0.95/m3
H	Filling to make up levels with imported materials over 300mm average thick obtained off site.	165	m ³	5	OMR1.95/m3
	<u>INSITU CONCRETE/LARGE PRECAST CONCRETE.</u>				
	<u>E10 INSITU CONCRETE</u>				
	<u>Plain; concrete(1:3:6-all in aggregate)</u>				
J	foundation footing 150-300mm thick	55	m ³	3	OMR22.50/m3
K	Ground floor slab not exceeding 100mm thick;	65	m ³	2	OMR18.50/m3

	<u>E20 FORMWORK FOR IN SITU CONCRETE</u>				
	carried to collection				
	<u>E20 FORMWORK FOR IN SITU CONCRETE</u>				
	<u>Formwork;Sawn formwork</u>				
	Edges of beds				
	Sides of column 230x230mm				
A	Plain rectangular	38	m ²	2	OMR1.15/m2
B	sides of column bases not exceeding 750mm high	360	m	2	OMR0.075/m
C	Edge of floor bed 150mm thick	192	m	1	OMR0.075/m
	<u>E30 REINFORCEMENT FOR IN SITU CONCRTE</u>				
	<u>Reinforcement; high tensile reinforcement to BS4449 grade 250;</u>				
	<u>Bars:</u>				
	Column in foundation				
D	20 nominal size	1223	kg	6	OMR0.359/kg
E	10 nominal size	206	kg	3	OMR0.359/kg
	Column bases				
F	20 nominal size	6936	kg	26	OMR0.359/kg
	carried to collection				

	<u>E30 REINFORCEMENT FOR IN SITU CONCRTE</u>				
	<u>Reinforcement;Fabric mesh to B.S.8110</u>				
	Fabric Mesh;				
A	type A142;weight 2.22 kg/m2;measured nett with minimum 300 lap at joints	407	m ²	3	OMR0.656/m2
	<u>E40 DESIGN JOINTS FOR IN SITU CONCRETE</u>				
	<u>Joints;Flexcel or other approved expansion joints</u>				
	Plain				
B	25mm thick 450-750 wide;horizontal	201	m	2	OMR1.25/m
	<u>F MASONRY</u>				
	<u>F10 BRICK/BLOCK WALLING</u>				
	<u>Blockwork;Hollow sandcrete blockwork in cement mortar(1:6) filled solid with concrete</u>				
	Walls				
C	225 thick	216	m ²	5.0	OMR2.86/m2
D	ADDITIONAL FOUNDATION Allow a provisional sum of =OMR2,000 TWO thousand Omani Rials Only) for additional work in sub-structure.				
	carried to collection				
	<u>Collection</u> PAGE/01/BILL No.2/31 PAGE/02/BILL No.2/31 PAGE/03/BILL No.2/31				
	<u>Substructure</u> Carried to summary				
	<u>Frame</u>				

	<u>E. IN SITU CONCRETE/LARGE PRECAST CONCRETE.</u>				
	<u>E 10 IN SITU CONCRETE</u>				
	<u>Reinforced; Concrete Grade 25.5; developing minimum 25.5N/mm2 work strength in 28 days.</u>				
A	<u>Beams; generally</u>	32	m ³	2	OMR20.00/m3
	<u>Columns</u>				
B	generally	17	m ³	1	OMR20.00/m3
	<u>E20 FORMWORK FOR IN SITU CONCRETE</u>				
	<u>Attached beams</u>				
C	rectangular	351	m ²	7	OMR1.15/m2
	<u>Columns;</u>				
D	rectangular	262	m ²	5	OMR1.15/m2
	<u>E30 REINFORCEMENT FOR IN SITU CONCRETE</u>				
	<u>Reinforcement:Mild steel reinforcement to BS4449 grade 250</u>				
	<u>Bars</u>				
	<u>Beams; generally</u>				
E	25 -12nominal size	4595	kg	17	OMR0.359/kg
F	10 nominal size stirrups and links	2341	kg	9	OMR0.359/kg
	carried to collection				
	<u>E30 REINFORCEMENT FOR IN SITU CONCRETE</u>				

	<u>Reinforcement:Mild steel reinforcement to BS4449 grade 250</u> <u>Bars</u> <u>Columns; generally</u>				
A	25-12 nominal size	4617	kg	19	OMR0.359/kg
B	10 nominal size in links and stirrups	1830	kg	7	OMR0.359/kg
	carried to collection				
	<p style="text-align: center;"><u>Collection</u></p> <p style="text-align: center;">-</p> <p style="text-align: center;">PAGE/04/BILL No.2/31</p> <p style="text-align: center;">PAGE/05/BILL No.2/31</p>				
	<p style="text-align: center;"><u>Frame</u></p> <p style="text-align: center;">Carried to summary</p>				
	<u>M SURFACE FINISHES</u>				
	<u>M20</u>				

	<u>PLASTERED/RENDERED/ROUGHCAST COATINGS</u>				
	<u>CEMENT AND SAND (1:4) BEDS AND BACKINGS; TO RECEIVE SUBSEQUENT FINISHING</u>				
	Walls;				
A	over 300mm wide; 12mm thick; floated to receive ceramic tiles; internal	275	m ²	12	OMR1.15/m2
B	not exceeding 300mm wide; 12mm thick; floated to receive ceramic tiles; internal	78	m	3	OMR0.350/m
	<u>CEMENT AND SAND (1:4) PLAIN RENDERING;15MM THICK; IN TWO COATS; STEEL TROWELLED FINISH</u>				
	Walls; Internal and Externally				
C	over 300mm wide	3185	m ²	88	OMR1.15/m2
D	not exceeding 300mm wide	2340	m	17	OMR0.350/m
	<u>CERAMIC WALL TILING; CERAMIC WALL TILING; 150 x 150 x 6mm GLAZED TILES;WHITE; FIXING WITH ADHESIVE; STRAIGHT BUTT JOINTS; FLUSH POINTING WITH WHITE GROUT</u>				
E	<u>Walls;</u> over 300mm wide	275	m ²	10	OMR2.350/m2
D	not exceeding 300mm wide <u>PAINTING PLAIN RENDER; PREPARE SURFACES; ONE UNDERCOAT AND TWO COATS WHITE VINYL EMULSION PAINT INCLUDING POP FLOATING</u>	78	m	3	OMR1.350/m
D	Generally; faces of rendered wall internal and external; over 300mm girth	3887	m ²	60	OMR1.08/m2
	<u>Wall finishes</u>				
	Carried to summary				
	<u>Floor finishes</u>				

<u>M SURFACE FINISHES</u>					
<u>M20</u>					
<u>SCREEDING/PLASTERED/RENDERED</u>					
<u>COATINGS</u>					
-					
<u>Beds and Backings;</u>					
-					
<u>40mm thick cement and sand (1:4) level screeded bed to receive floor tiles.</u>					
A	Floors; generally	981	m ²	25	OMR1.550/m2
-					
<u>VITRIFIED FLOOR TILING;</u>					
-					
<u>300 x 300 x 6mm thick high quality non-slip Vitrified Floor tiles laid in approved pattern with adhesive including grouting in neat coloured cement.</u>					
B	Floors; generally	520	m ²	16	OMR2.350/m2
C	Skirtings; 75mm high	1235	m	14	OMR1.350/m
<u>MARBLE FLOOR TILING</u>					
<u>450 x 450 x 15mm thick high quality marble floor tiles laid in approved pattern with adhesive including grouting in neat coloured cement.</u>					
D	Floors; generally	277	m ²	12	OMR8.50/m2
E	Skirtings; 100mm high	620	m	8	OMR3.50/m
<u>450 x 450 x 15mm thick high quality granite floor tiles laid in approved pattern with adhesive including grouting in neat coloured cement.</u>					
D	Floors; generally	110	m ²	4	OMR13.50/m2
E	Skirtings; 100mm high	86	m	3	OMR3.50/m
<u>Floor finishes</u>					
<u>Carried to summary</u>					
<u>Ceiling finishes</u>					
<u>M SURFACE FINISHES</u>					

A	<p><u>M20 PLASTERED/RENDERED/ROUGHCAST COATINGS</u></p> <p><u>Render;Cement and sand (1:3)</u> 15mm thick to soffit of suspended slab</p>	530	m ²	22	OMR1.330/m2
B	<p>PLASTER OF PARIS (POP) CEILING FINISH</p> <p><u>Supply prepare and fix plaster of Paris (POP) suspended Ceiling to ceiling nogginsincluding hangers ;</u> Ceilings; over 300mm wide;</p>	494	m ²	12	OMR2.850/m2
C	<p>DECORATIVE CORNICE</p> <p><u>PLASTERED OF PARIS; FIXING WITH SCREW OR OTHER APPROVED METHOD:FILLING HOLES AND JOINTS WITH PLASTER.</u></p> <p><u>Cornice:</u></p> <p>Moulding: Approved Type; not exceeding 300mm wide; as architectural details</p>	1545	m	21	OMR1.250/m2
D	<p>PAINTING</p> <p><u>PAINTING PLAIN RENDER; PREPARE SURFACES; ONE UNDERCOAT AND TWO COATS WHITE VINYL EMULSION PAINT INCLUDING POP FLOATING</u></p> <p>General surfaces;</p> <p>Generally; soffit of ceilings; over 300mm girth</p>	530	m ²	12	OMR1.08/m2
	<u>Ceiling finishes</u>				
	Carried to summary				
				451	

References

Albogamy, A., Scott, D. & Dawood, N., 2012. Addressing construction delays in the Kingdom of Saudi Arabia. *International Proceedings of Economics Development & Research (IPDER)*, Volume 45, p. 148–153..

Almutairi, N. S., 2016. Causes of delays on Construction Projects in Kuwait according to opinion of engineers working in Kuwait. *International Journal of Engineering Research and Application*, 6(12), pp. 84-96.

Alnuaimi, A. S. & Al Mohsin, M. A., 2013. *Causes of Delay in Completion of Construction Projects in Oman*. Bangkok , International Conference on Innovations in Engineering and Technology (ICIET'2013) Dec. 25-26, Bangkok.

Emam, H., Farrell, P. & Abdelaal, M., 2015. *Causes of delay on infrastructure projects in Qatar*. UK, Association of Researchers in Construction Management (ARCOM).

Mpofu, B., Ochieng, E. G., Moobela, C. & Pretorius, A., 2017. Profiling causative factors leading to construction project delays in the United Arab Emirates. *Engineering, Construction and Architectural Management*, 24(2), pp. 346-376.

Oyegoke, A. S. & Al Kiyumi, N., 2017. The causes, impacts and mitigations of delay in megaprojects in the Sultanate of Oman. *Journal of Financial Management of Property and Construction*, 22(3), pp. 286-302.

Additional comments

Second Attempt Assessment: Second Attempt Assessment will be as per what is stated in the module Descriptor.

Signature:

Date: