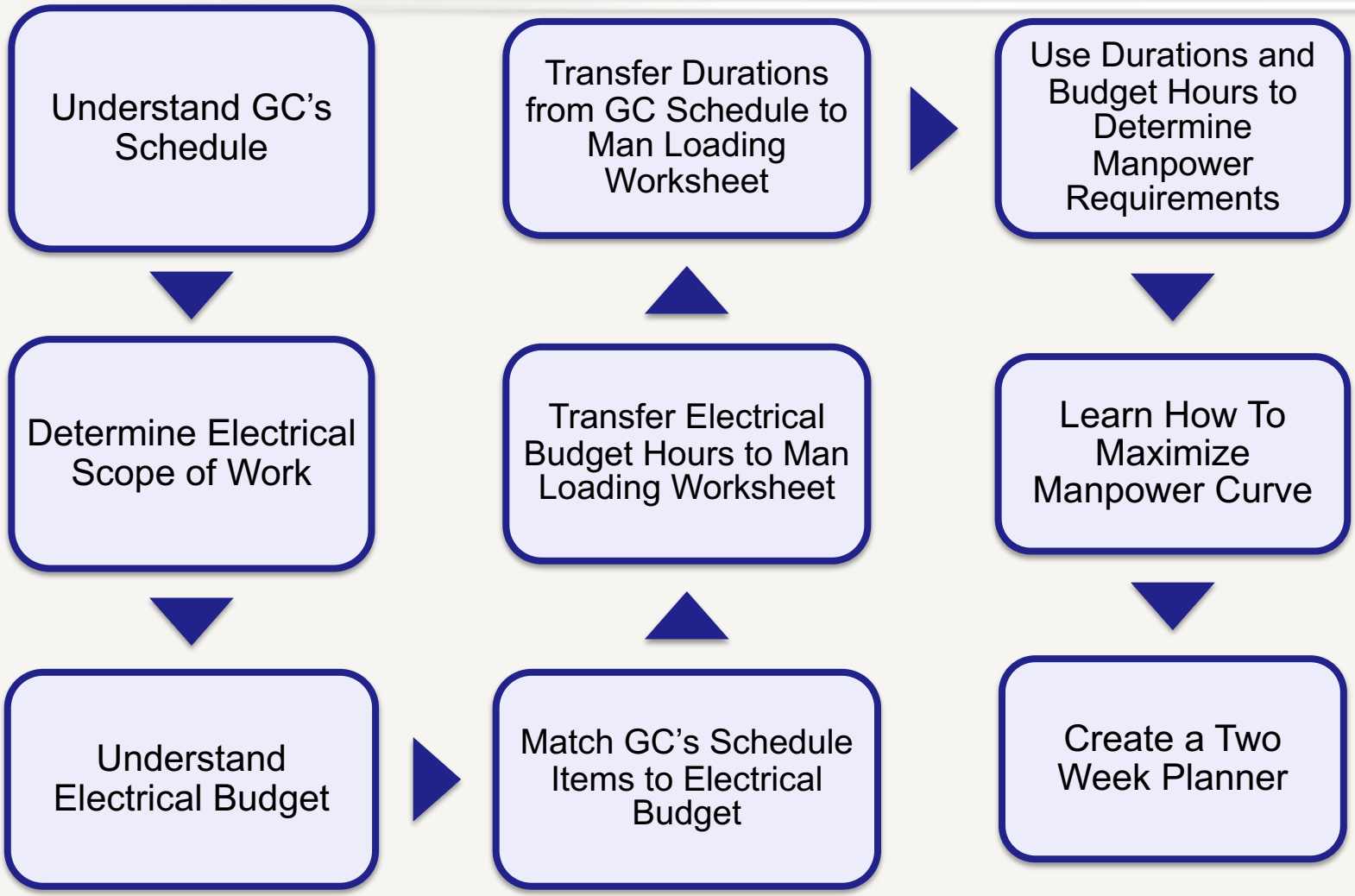
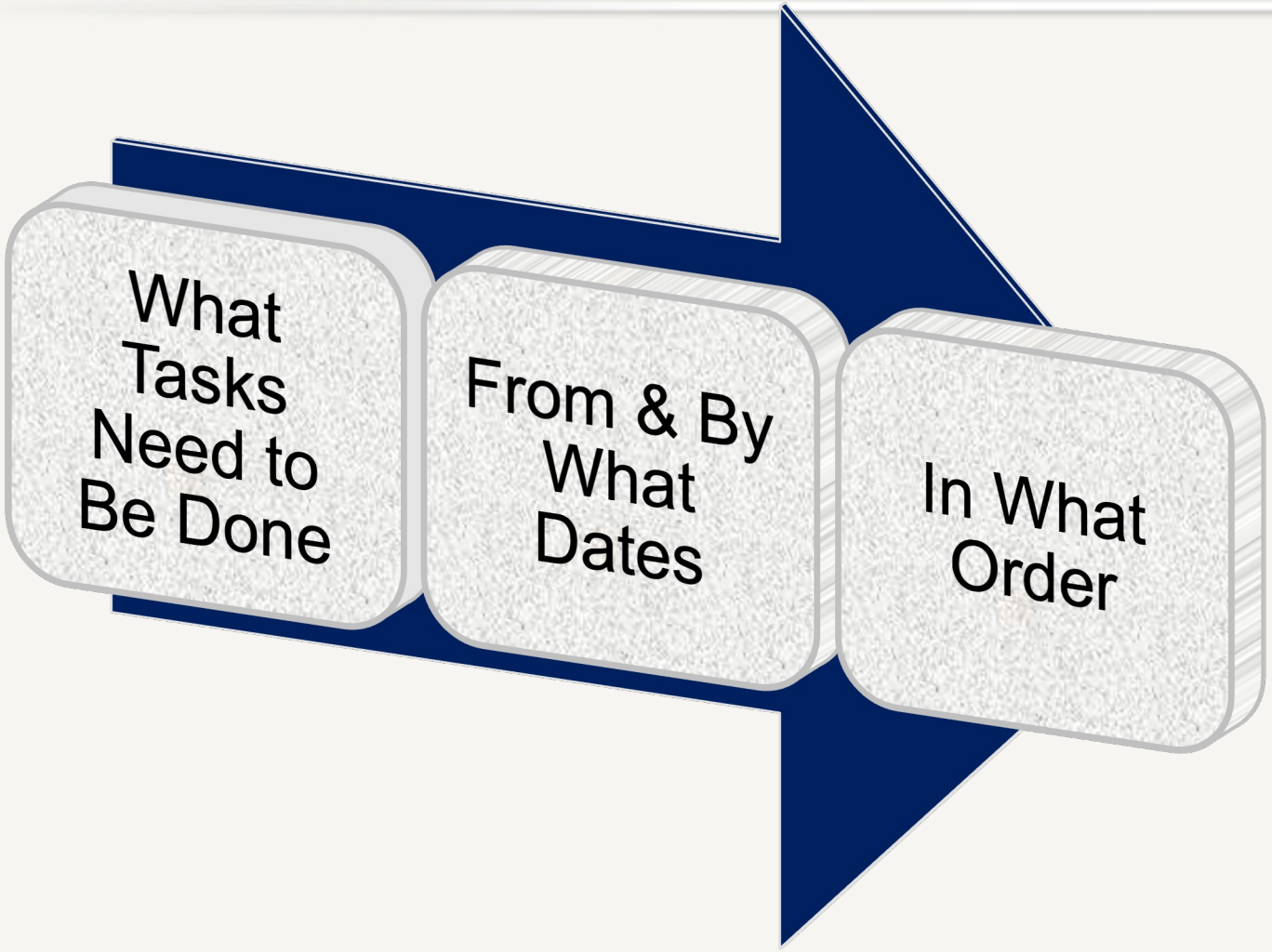
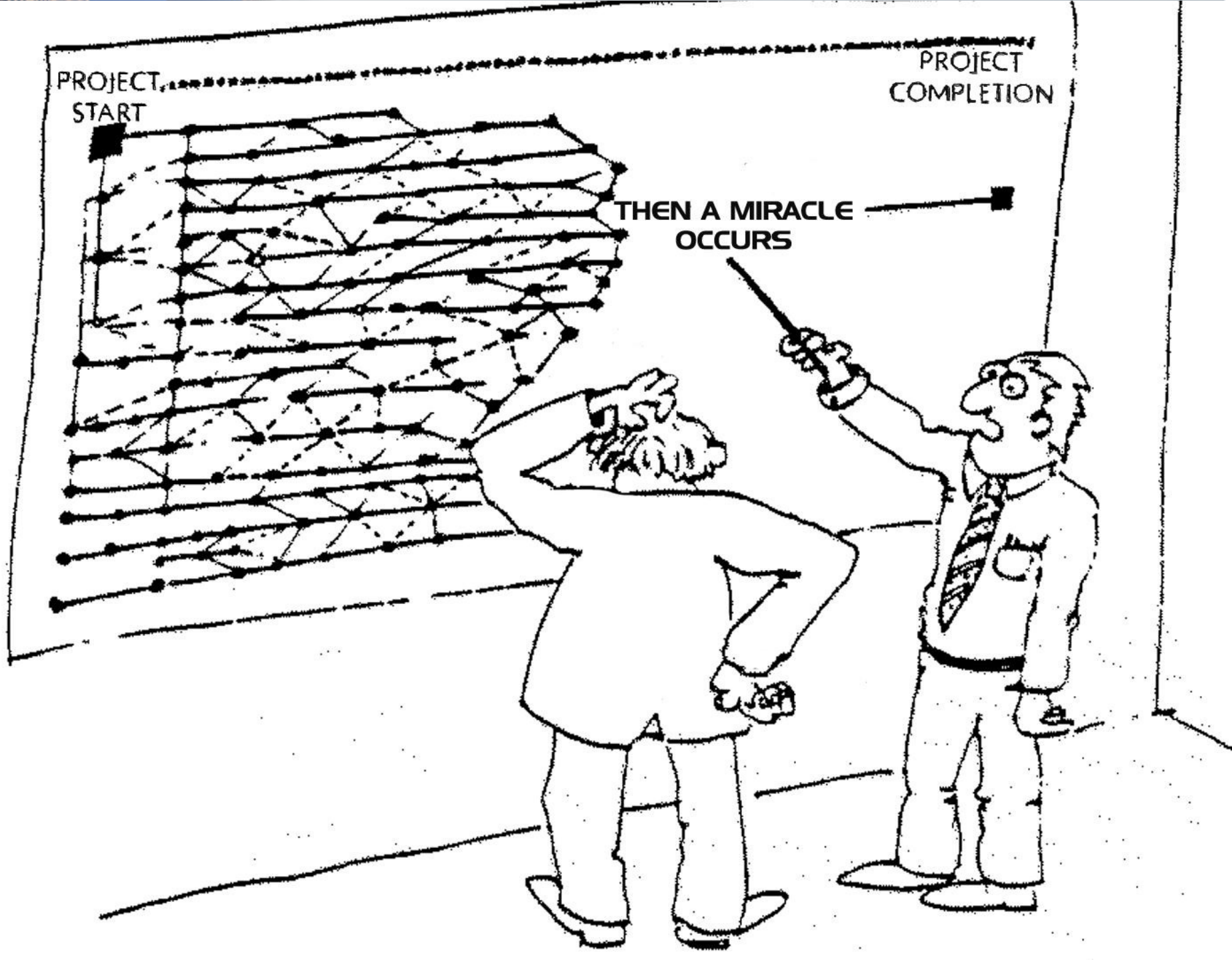
FOREMAN'S DEVELOPMENT SERIES

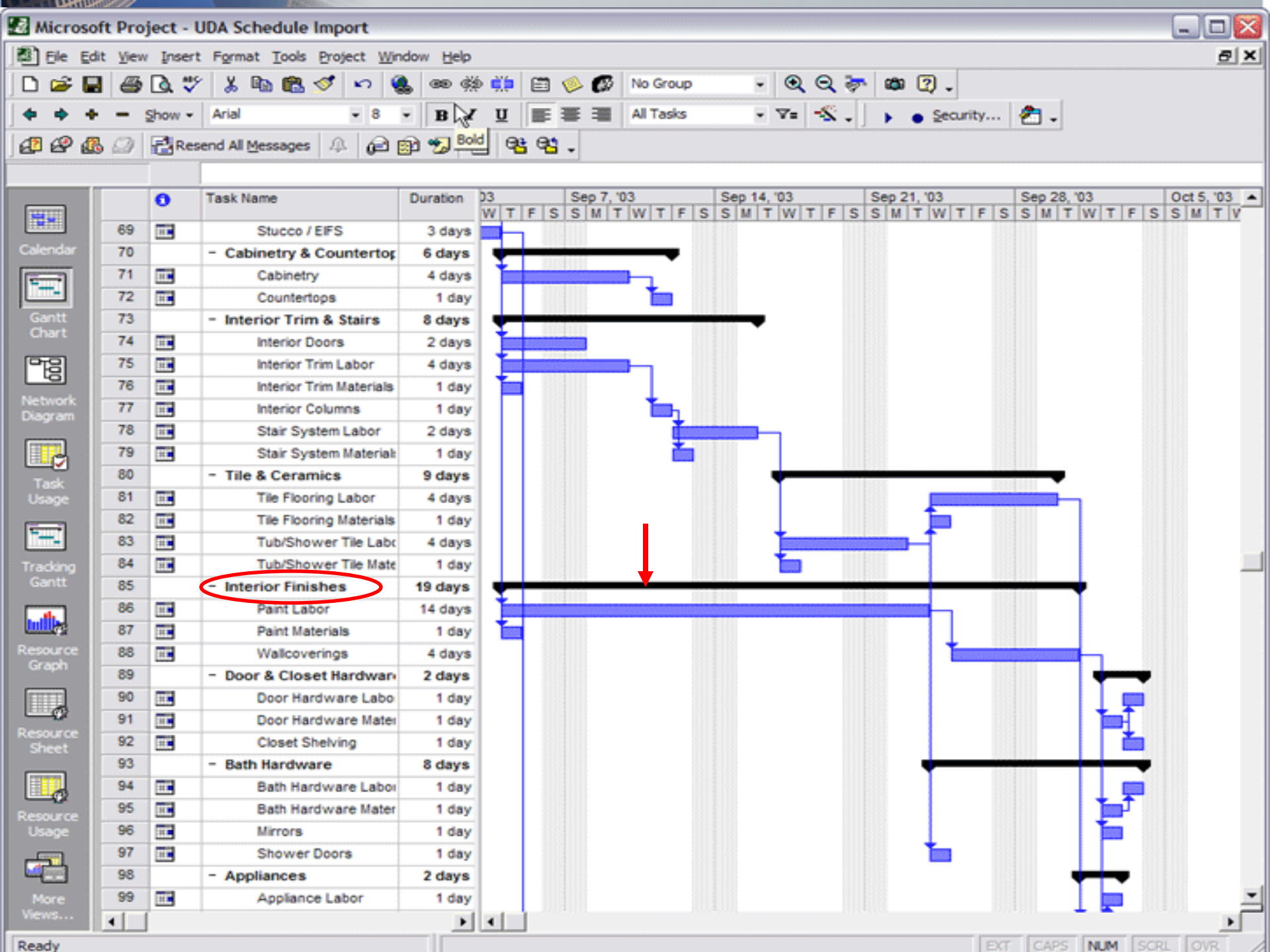
Overview of Class Activity



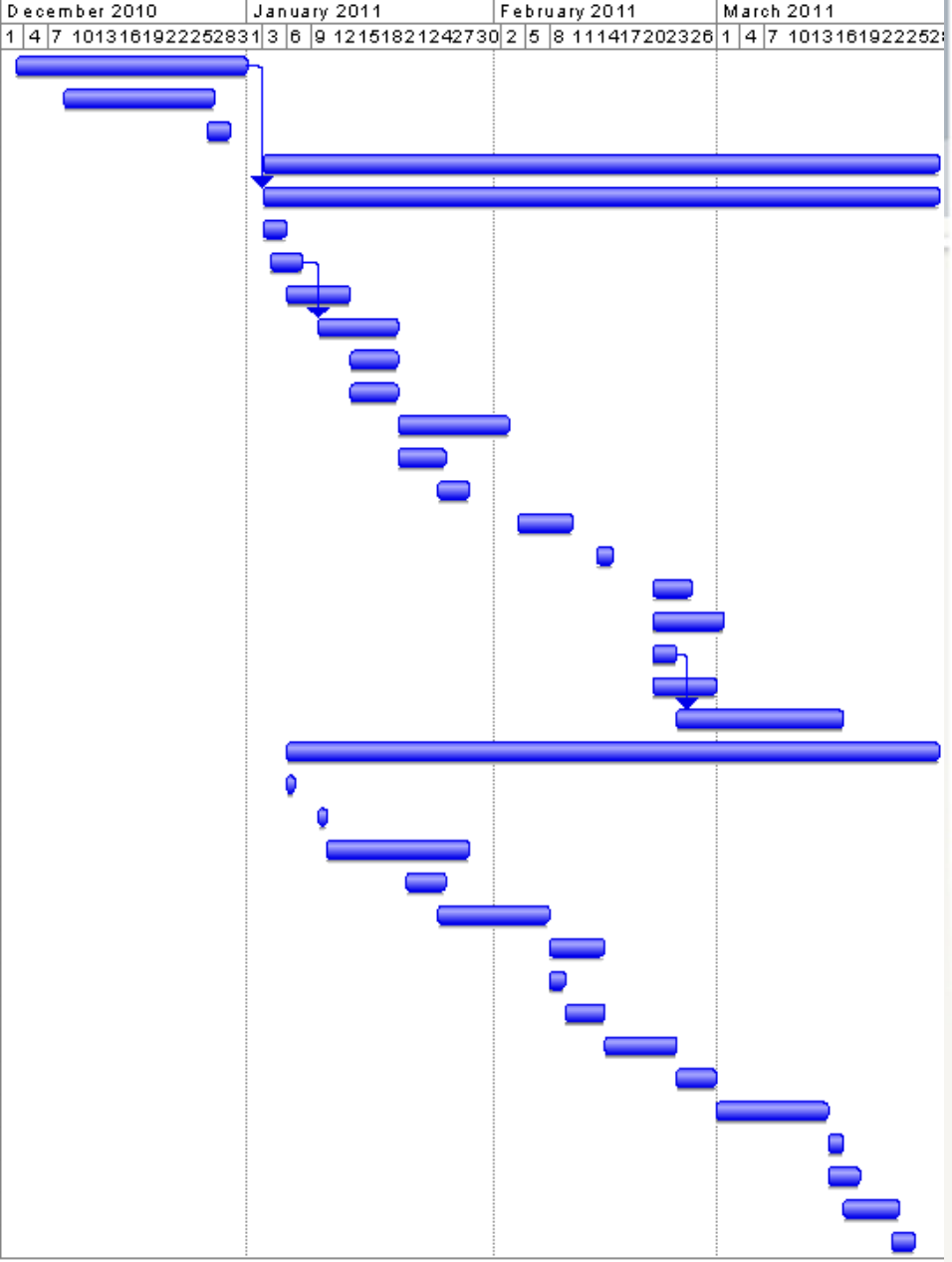
Schedule




PROJECT START
PROJECT COMPLETION
THEN A MIRACLE OCCURS


Microsoft Project - UDA Schedule Import
File Edit View Insert Format Tools Project Window Help
No Group
Show Arial 8 All Tasks Security...
Resend All Messages
Bold
Calendar
Gantt Chart
Network Diagram
Task Usage
Tracking Gantt
Resource Graph
Resource Sheet
Resource Usage
More Views...
Task Name
Duration
Sep 7, '03
Sep 14, '03
Sep 21, '03
Sep 28, '03
Oct 5, '03
69 Stucco / EIFS 3 days
70 Cabinetry & Countertop 6 days
71 Cabinetry 4 days
72 Countertops 1 day
73 Interior Trim & Stairs 8 days
74 Interior Doors 2 days
75 Interior Trim Labor 4 days
76 Interior Trim Materials 1 day
77 Interior Columns 1 day
78 Stair System Labor 2 days
79 Stair System Material 1 day
80 Tile & Ceramics 9 days
81 Tile Flooring Labor 4 days
82 Tile Flooring Materials 1 day
83 Tub/Shower Tile Labo 4 days
84 Tub/Shower Tile Mate 1 day
85 Interior Finishes 19 days
86 Paint Labor 14 days
87 Paint Materials 1 day
88 Wallcoverings 4 days
89 Door & Closet Hardwar 2 days
90 Door Hardware Labo 1 day
91 Door Hardware Mate 1 day
92 Closet Shelving 1 day
93 Bath Hardware 8 days
94 Bath Hardware Labo 1 day
95 Bath Hardware Mater 1 day
96 Mirrors 1 day
97 Shower Doors 1 day
98 Appliances 2 days
99 Appliance Labor 1 day
Ready
EXT CAPS NUM SCRL OVR

ID	Task Name	Duration	Start	Finish
1	Issue Permit Drawings	21 days	Fri 12/3/10	Fri 12/31/10
2	Bid/Award Interiors	13 days	Thu 12/9/10	Mon 12/27/10
3	Finalize GMP	3 days	Mon 12/27/10	Wed 12/29/10
4	Construction	61 days	Mon 1/3/11	Mon 3/28/11
5	Main Floor	61 days	Mon 1/3/11	Mon 3/28/11
6	Demo Light Fixtures	3 days	Mon 1/3/11	Wed 1/5/11
7	Remove Ceiling Tile/Cut Grid	4 days	Tue 1/4/11	Fri 1/7/11
8	Layout/Saw Cut Floor	6 days	Thu 1/6/11	Thu 1/13/11
9	Frame Walls	8 days	Mon 1/10/11	Wed 1/19/11
10	Feeder Conduit	4 days	Fri 1/14/11	Wed 1/19/11
11	Set Switchgear	4 days	Fri 1/14/11	Wed 1/19/11
12	MEP Overhea Rough-In	10 days	Thu 1/20/11	Wed 2/2/11
13	MEP Wall Rough-In	4 days	Thu 1/20/11	Tue 1/25/11
14	Cable Tray	4 days	Tue 1/25/11	Fri 1/28/11
15	Repair Ceiling/Insert Lights	5 days	Fri 2/4/11	Thu 2/10/11
16	UPS	2 days	Mon 2/14/11	Tue 2/15/11
17	Paint	5 days	Mon 2/21/11	Fri 2/25/11
18	Install Doors	7 days	Mon 2/21/11	Tue 3/1/11
19	Install MEP Trim	3 days	Mon 2/21/11	Wed 2/23/11
20	Millwork/Coffee Bar Install	6 days	Mon 2/21/11	Mon 2/28/11
21	Furniture Install/Hookup	15 days	Thu 2/24/11	Wed 3/16/11
22	Locker Room	58 days	Thu 1/6/11	Mon 3/28/11
23	Remove Floor Carpet	1 day	Thu 1/6/11	Thu 1/6/11
24	Demo Lights	1 day	Mon 1/10/11	Mon 1/10/11
25	Underfloor Plumbing Rough-In	14 days	Tue 1/11/11	Fri 1/28/11
26	Overhead Rough-In	3 days	Fri 1/21/11	Tue 1/25/11
27	Wall Framing/Ceiling Framing	10 days	Tue 1/25/11	Mon 2/7/11
28	MEP Wall Rough-In	5 days	Tue 2/8/11	Mon 2/14/11
29	Misc Metal Supports (Lockers)	2 days	Tue 2/8/11	Wed 2/9/11
30	Frame Ceiling/Insert Lights	3 days	Thu 2/10/11	Mon 2/14/11
31	Rock/Tape	7 days	Tue 2/15/11	Wed 2/23/11
32	Paint	3 days	Thu 2/24/11	Mon 2/28/11
33	Ceramic Tile/Carpet	10 days	Tue 3/1/11	Mon 3/14/11
34	Install Millwork	2 days	Tue 3/15/11	Wed 3/16/11
35	Install Doors/Frames/Hrdwr	4 days	Tue 3/15/11	Fri 3/18/11
36	Install Lockers/Benches	5 days	Thu 3/17/11	Wed 3/23/11
37	MEP Trim	3 days	Wed 3/23/11	Fri 3/25/11



Project: Bally's Gym
Date: Tuesday, 11/30/10

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

CONSTRUCTION SCHEDULE – Bally's Gym – San Antonio, TX

ID #	TASK/FUNCTION	DURATION	START DATE	FINISH DATE
1	Issue Permit Drawings	21 Days	Fri – 12/3/10	Fri – 12/31/10
2	Bid/Award Interiors	13 Days	Thu – 12/9/10	Mon – 12/27/10
3	Finalize GMP	3 Days	Mon – 12/27/10	Wed – 12/29/10
4	CONSTRUCTION	61 Days	Mon – 1/3/11	Fri – 3/25/11
5	**MAIN FLOOR**	61 Days	Mon – 1/3/11	Fri – 3/25/11
6	Demo Light Fixtures	3 Days	Mon – 1/3/11	Wed – 1/5/11
7	Remove Ceiling Tile/Cut Grid	4 Days	Tue – 1/4/11	Fri – 1/7/11
8	Layout/Saw Cut Floor	6 Days	Thu – 1/6/11	Thu – 1/13/11
9	Frame Walls	8 Days	Mon – 1/10/11	Wed – 1/19/11
10	Feeder Conduit	4 Days	Fri -1/14/11	Wed – 1/19/11
11	Set Switchgear	4 Days	Fri – 1-14-11	Wed – 1-19/11
12	MEP Overhead Rough-In	10 Days	Thu – 1/20/11	Wed – 2/2/11
13	MEP Wall Rough-In	4 Days	Thu – 1/20/11	Tue – 1/25/11
14	Cable Tray	4 Days	Tue – 1/25/11	Fri – 1/28/11
15	Repair Ceiling/Insert Lights	5 Days	Fri – 2/4/11	Thu – 2/10/11
16	UPS	2 Days	Mon – 2/14/11	Tue – 2/15/11
17	Paint	5 Days	Mon – 2/14/11	Fri – 2/18/11
18	Install Doors	7 Days	Mon – 2/21/11	Tue – 3/1/11
19	Install MEP Trim	3 Days	Mon – 2/21/11	Wed 2/23/11
20	Millwork/Coffee Bar Install	6 Days	Mon – 2/21/11	Mon – 2/28/11
21	Furniture Install/Hookup	15 Days	Thu – 2/24/11	Wed – 3/16/11
22	**LOCKER ROOM**	58 Days	Thu – 1/6/11	Mon – 3/16/11
23	Remove Floor Carpet	1 Day	Thu – 1/6/11	Thu – 1/6/11
24	Demo Lights	1 Day	Thu – 1/6/11	Thu – 1/6/11
25	Underfloor Plumbing Rough-In	14 Days	Tue – 1/11/11	Fri – 1/28/11
26	MEP Overhead Rough-In	3 Days	Fri – 1/21/11	Tue – 1/25/11
27	Wall Framing/Ceiling Framing	10 Days	Tue – 1/25/11	Mon – 2/7/11
28	MEP Wall Rough-In	5 Days	Tue – 2/8/11	Mon – 2/14/11
29	Misc Metal Supports (Lockers)	2 Days	Tue – 2/8/11	Wed – 2/9/11
30	Frame Ceiling/Insert Lights	3 Days	Thu – 2/10/11	Mon – 2/14/11
31	Rock/Tape	7 Days	Tue – 2/15/11	Wed – 2/23/11
32	Paint	3 Days	Thu – 2/24/11	Mon – 2/28/11
33	Ceramic Tile/Carpet	10 Days	Tue – 3/1/11	Mon – 3/14/11
34	Install Millwork	2 Days	Tue – 3/15/11	Wed – 3/16/11
35	Install Doors/Frames/Hardware	4 Days	Tue – 3/15/11	Fri – 3/18/11
36	Install Lockers/Benches	5 Days	Thu – 3/17/11	Wed – 3/23/11
37	MEP Trim	3 Days	Wed – 3/23/11	Fri – 3/25/11

Task Activity #1

Using Handout #1 Construction Schedule – Highlight all items that are in scope:

- Saw cutting is included
- MEP = Mechanical, Electrical & Plumbing
- ID #21 – Office Furniture is being done by the Owner's subcontractor

(Answers on Next Slide)

CONSTRUCTION SCHEDULE – Bally's Gym – San Antonio, TX

Task Activity #1

ID #	TASK/FUNCTION	DURATION	START DATE	FINISH DATE
1	Issue Permit Drawings	21 Days	Fri – 12/3/10	Fri – 12/31/10
2	Bid/Award Interiors	13 Days	Thu – 12/9/10	Mon – 12/27/10
3	Finalize GMP	3 Days	Mon – 12/27/10	Wed – 12/29/10
4	CONSTRUCTION	61 Days	Mon – 1/3/11	Fri – 3/25/11
5	**MAIN FLOOR**	61 Days	Mon – 1/3/11	Fri – 3/25/11
6	Demo Light Fixtures	3 Days	Mon – 1/3/11	Wed – 1/5/11
7	Remove Ceiling Tile/Cut Grid	4 Days	Tue – 1/4/11	Fri – 1/7/11
8	Layout/Saw Cut Floor	6 Days	Thu – 1/6/11	Thu – 1/13/11
9	Frame Walls	8 Days	Mon – 1/10/11	Wed – 1/19/11
10	Feeder Conduit	4 Days	Fri -1/14/11	Wed – 1/19/11
11	Set Switchgear	4 Days	Fri – 1-14-11	Wed – 1-19/11
12	MEP Overhead Rough-In	10 Days	Thu – 1/20/11	Wed – 2/2/11
13	MEP Wall Rough-In	4 Days	Thu – 1/20/11	Tue – 1/25/11
14	Cable Tray	4 Days	Tue – 1/25/11	Fri – 1/28/11
15	Repair Ceiling/Insert Lights	5 Days	Fri – 2/4/11	Thu – 2/10/11
16	UPS	2 Days	Mon – 2/14/11	Tue – 2/15/11
17	Paint	5 Days	Mon – 2/14/11	Fri – 2/18/11
18	Install Doors	7 Days	Mon – 2/21/11	Tue – 3/1/11
19	Install MEP Trim	3 Days	Mon – 2/21/11	Wed 2/23/11
20	Millwork/Coffee Bar Install	6 Days	Mon – 2/21/11	Mon – 2/28/11
21	Furniture Install/Hookup	15 Days	Thu – 2/24/11	Wed – 3/16/11
22	**LOCKER ROOM**	58 Days	Thu – 1/6/11	Mon – 3/16/11
23	Remove Floor Carpet	1 Day	Thu – 1/6/11	Thu – 1/6/11
24	Demo Lights	1 Day	Thu – 1/6/11	Thu – 1/6/11
25	Underfloor Plumbing Rough-In	14 Days	Tue – 1/11/11	Fri – 1/28/11
26	MEP Overhead Rough-In	3 Days	Fri – 1/21/11	Tue – 1/25/11
27	Wall Framing/Ceiling Framing	10 Days	Tue – 1/25/11	Mon – 2/7/11
28	MEP Wall Rough-In	5 Days	Tue – 2/8/11	Mon – 2/14/11
29	Misc Metal Supports (Lockers)	2 Days	Tue – 2/8/11	Wed – 2/9/11
30	Frame Ceiling/Insert Lights	3 Days	Thu – 2/10/11	Mon – 2/14/11
31	Rock/Tape	7 Days	Tue – 2/15/11	Wed – 2/23/11
32	Paint	3 Days	Thu – 2/24/11	Mon – 2/28/11
33	Ceramic Tile/Carpet	10 Days	Tue – 3/1/11	Mon – 3/14/11
34	Install Millwork	2 Days	Tue – 3/15/11	Wed – 3/16/11
35	Install Doors/Frames/Hardware	4 Days	Tue – 3/15/11	Fri – 3/18/11
36	Install Lockers/Benches	5 Days	Thu – 3/17/11	Wed – 3/23/11
37	MEP Trim	3 Days	Wed – 3/23/11	Fri – 3/25/11

How id you

Labor Budget / Schedule

Handout #2

Labor Budget/Schedule

Bally's Gym, Inc.

Task	Activity Code	Budget Hours	Schedule ID	Duration Days	Budget Hours for Task with more than One Schedule ID	Manhours per Day Duration
Branch Conduit-Above Ceiling	100	688				
MC Cable-In Walls	110	154				
Feeder Conduit	200	120				
Branch Wire	300	208				
Feeder Wire	400	70				
Cable Tray	500	64				
Switchgear	600	120				
Generator	601	80				
UPS System	602	64				
Fire Alarm	701	64				
Motor Control	800	64				
Fixtures	900	351				
Trim	1100	146				
Grounding	1400	64				
Saw cutting & Coring	1600	68				
Demolition	1610	186				
TOTAL HOURS		**2511**				

Schedule ID-Activity #2

Cross-reference GC Schedule and Electrical Budget

- Place the Schedule ID #'s in the 4th column on the Budget Sheet.
- There may be more than one Schedule ID # for a Task.

Example on Next Slide

CONSTRUCTION SCHEDULE – Bally's Gym – San

ID #	TASK/FUNCTION	DURATION
1	Issue Permit Drawings	21 Days
2	Bid/Award Interiors	13 Days
3	Finalize GMP	3 Days
4	CONSTRUCTION	61 Days
5	**MAIN FLOOR**	61 Days
6	Demo Light Fixtures	3 Days
7	Remove Ceiling Tile/Cut Grid	4 Days
8	Layout/Saw Cut Floor	6 Days
9	Frame Walls	8 Days
10	Feeder Conduit	4 Days
11	Set Switchgear	4 Days
12	MEP Overhead Rough-In	10 Days
13	MEP Wall Rough-In	4 Days
14	Cable Tray	4 Days
15	Repair Ceiling/Insert Lights	5 Days
16	UPS	2 Days
17	Paint	5 Days
18	Install Doors	7 Days
19	Install MEP Trim	3 Days
20	Millwork/Coffee Bar Install	6 Days
21	Furniture Install/Hookup	15 Days
22	**LOCKER ROOM**	58 Days
23	Remove Floor Carpet	1 Day
24	Demo Lights	1 Day
25	Underfloor Plumbing Rough-In	14 Days
26	MEP Overhead Rough-In	3 Days
27	Wall Framing/Ceiling Framing	10 Days
28	MEP Wall Rough-In	5 Days
29	Misc Metal Supports (Lockers)	2 Days
30	Frame Ceiling/Insert Lights	3 Days
31	Rock/Tape	7 Days
32	Paint	3 Days
33	Ceramic Tile/Carpet	10 Days
34	Install Millwork	2 Days
35	Install Doors/Frames/Hardware	4 Days
36	Install Lockers/Benches	5 Days
37	MEP Trim	3 Days

Labor Budget/Schedule

Bally's Gym, Inc.

Task	Activity Code	Budget Hours	Schedule ID	Duration Days	Budget Ho
Branch Conduit-Above Ceiling	100	688			
MC Cable-In Walls	110	154			
Feeder Conduit	200	120			
Branch Wire	300	208			
Feeder Wire	400	70			
Cable Tray	500	64			
Switchgear	600	120			
Generator	601	80			
UPS System	602	64			
Fire Alarm	701	64			
Motor Control	800	64			
Fixtures	900	351			
Trim	1100	146			
Grounding	1400	64			
Saw cutting & Coring	1600	68			
Demolition	1610	186	6, 24		
TOTAL HOURS		2511			

Labor Budget / Schedule
Bally's Gym, Inc.

Task	Activity Code	Budget Hours	Schedule ID	Duration Days	Manhours per Day of Duration	Budget Hours for Task or Tasks with more than One Schedule ID
Branch Conduit-Above Ceiling	100	688	12, 26			
MC Cable-In Walls	110	154	13, 28			
Feeder Conduit	200	120	10			
Branch Wire	300	208				
Feeder Wire	400	70				
Cable Tray	500	64	14			
Switchgear	600	120	11			
Generator	601	80				
UPS System	602	64	16			
Fire Alarm	701	64				
Motor Control	800	64				
Fixtures	900	351	15, 30			
Trim	1100	146	19, 37			
Grounding	1400	64				
Saw cutting & Coring	1600	68	8			
Demolition	1610	186	6, 24			
TOTAL HOURS		2511				

Task	Activity Code	Budget Hours	Schedule ID	Duration Days	Manhours per Day of Duration	Budget Hours for Task or Tasks with more than One Schedule ID
Branch Conduit-Above Ceiling	100	688				
MC Cable-In Walls	110	154				
Feeder Conduit	200	120	10	4 days	120 / 4 days = 30 hours per day	I.D. #10 = 120 budget hours

1. **For each of the tasks with a single Schedule ID #: Write in the number of Duration days from the General Contractors Schedule**

   Example - Feeder Conduit is Schedule ID #10 and has a duration of 4 days and 120 budgeted hours

2. **Figure out how many manhours per day must be worked for each of these Tasks:**

   - For example: for Feeder Conduit we only have **4 days** to do **120 hours worth of labor**. So, we must spend 30 manhours per day to finish this task on time!

   120 Budget Hrs / 4 Days Duration = 30 manhours per day

Task	Activity Code	Budget Hours	Schedule ID	Duration Days	Manhours per Day of Duration	Budget Hours for Task or Tasks with more than One Schedule ID
Branch Conduit-Above Ceiling	100	688	12, 26	10 days + 3 days	688 / 13 days = 53 hours per day	ID #12 = 530 hours ID #26 = 159 hours

When there is more than (1) Schedule ID # associated with a Task,
The Budget Hours need to be individually calculated for each task:

Branch Conduit – Above Ceiling = **688** Total Budget Hours

Schedule ID # 12 = 10 Days
Schedule ID # 26 = 3 Days
13 Days

688 Budget Hrs / 13 Days Duration = 53 (52.9) **manhours per day**
(round up)

Schedule ID # 12 = 53 (hours per day) x 10 (days) = **530** Budget Hours

Schedule ID # 26 = 53 (hours per day) x 3 (days) = **159** Budget Hours

1. **Write in the # of days associated with each Schedule ID, then add them up.**
2. **Figure out how many manhours per day are required for the two Tasks**
3. **Calculate the budget hours for each and write them in**

Labor Budget / Schedule
Bally's Gym, Inc.

Handout #2 - with all Answers

Task	Activity Code	Budget Hours	Schedule ID	Duration Days	Manhours per Day of Duration	Budget Hours for Task or Tasks with more than One Schedule ID
Branch Conduit-Above Ceiling	100	688	12, 26	10 days, 3 days	688 / 13 days = 53 hours per day	ID #12 = 530 hours ID #26 = 159 hours
MC Cable-In Walls	110	154	13, 28	4 days, 5 days	154 / 9 days = 17 hours per day	ID #13 = 68 hours ID #28 = 85 hours
Feeder Conduit	200	120	10	4 days	120 / 4 days = 30 hours per day	ID #10 = 120 hours
Branch Wire	300	208				
Feeder Wire	400	70				
Cable Tray	500	64	14	4 days	64 / 4 days = 16 hours per day	ID #14 = 64 hours
Switchgear	600	120	11	4 days	120 / 4 days = 30 hours per day	ID #10 = 120 hours
Generator	601	80				
UPS System	602	64	16	2 days	64 / 2 days = 32 hours per day	ID #16 = 64 hours
Fire Alarm	701	64				
Motor Control	800	64				
Fixtures	900	351	15, 30	5 days, 3 days	351/ 8 days =44 hours per day	ID #15 = 220 hours ID #30 = 132 hours
Trim	1100	146	19, 37	3 days, 3 days	146/ 6 days =24 hours per day	ID #19 = 72 hours ID #37 = 72 hours
Grounding	1400	64				
Saw cutting & Coring	1600	68	8	6 days	68 / 6 days = 11.3 hours per day	ID #8 = 68 hours
Demolition	1610	186	6, 24	3 days, 1 day	186 / 4 days = 47 hours per day	ID #6 = 141 hours ID #24 = 47 hours
TOTAL HOURS		2511				

JOB: **Bally's Gym**

Manloading Worksheet

Handout #3

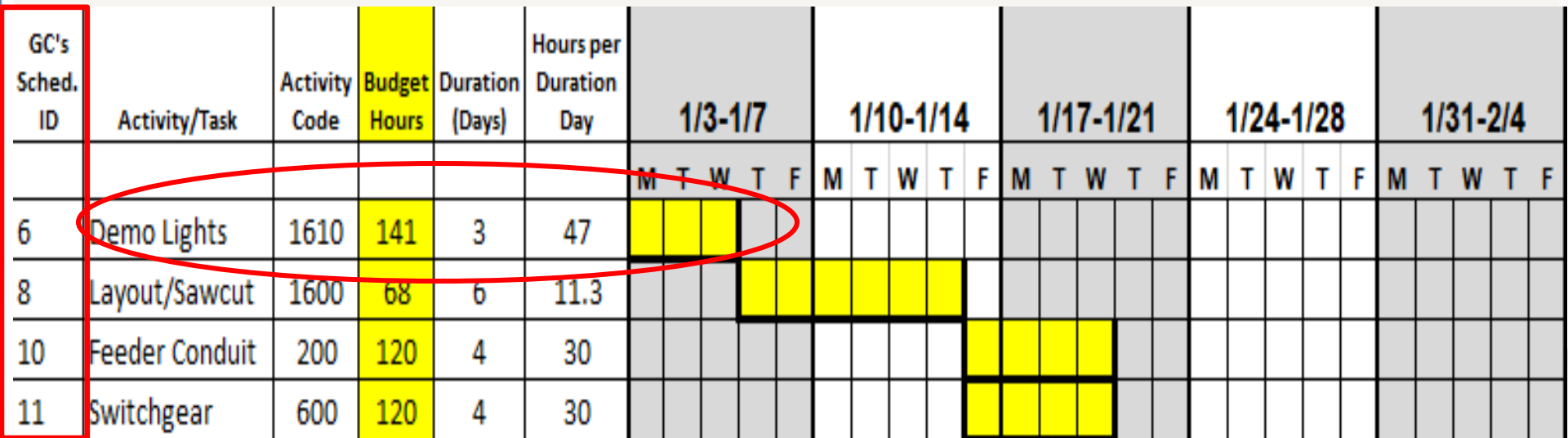
GC's Sched. ID	Activity/Task	Activity Code	Budget Hours	Duration (Days)	Hours per Duration Day	1/3-1/7					1/10-1/14					1/17-1/21					1/24-1/28					1/31-2/4				
						M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights	1610	141	3	47																								
8	Layout/Sawcut	1600	68	6	11.3																								
10	Feeder Conduit	200	120	4	30																								
11	Switchgear	600	120	4	30																								
12	OH/Rough in	100	530	10	53																								
13	Wall Rough in	110	68	4	17																								
14	Cable Tray	500	64	4	16																								
15	Lights	900	220	5	44																								
16	UPS	602	64	2	32																								
19	Trim	1100	72	3	24																								
24	Demo Lights	1610	47	1	47																								
26	OH/Rough in	100	159	3	53																								
28	Wall Rough in	110	85	5	17																								
30	Lights	900	132	3	44																								
37	Trim	1100	72	3	24																								
	Total																												
	Missing																												

Duration Activity #4

First Task (Demo Lights)

- Find start & finish dates on GC Schedule.
- Draw a vertical line to represent the number of days in the date box.
- Connect two vertical lines with a low horizontal line.

(Answers on next slide)



GC's Sched. ID	Activity/Task	Activity Code	Budget Hours	Duration (Days)	Hours per Duration Day	1/3-1/7					1/10-1/14					1/17-1/21					1/24-1/28					1/31-2/4				
						M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights	1610	141	3	47																								
8	Layout/Sawcut	1600	68	6	11.3																								
10	Feeder Conduit	200	120	4	30																								
11	Switchgear	600	120	4	30																								

Manloading Worksheet

Handout #4

JOB: **Bally's Gym**

GC's Sched. ID	Activity / Task	Activity Code	Budget Hours	Duration (Days)	Hours per Duration Day	1/3-1/7					1/10-1/14					1/17-1/21					1/24-1/28					1/31-2/4					2/7-2/11					2/14-2/18					2/21-2/25					2/28-3/4					3/7-3/11					3/14-3/18					3/21-3/25				
						M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights	1610	141	3	47	6	6	6																																																									
8	Layout/Sawcut	1600	68	6	11.3				2	2	2	2	2	2																																																	
10	Feeder Conduit	200	120	4	30																																																										
11	Switchgear	600	120	4	30																																																										
12	OH/Rough in	100	530	10	53																																																									
13	Wall Rough in	110	68	4	17																																																									
14	Cable Tray	500	64	4	16																																																									
15	Lights	900	220	5	44																																																									
16	UPS	602	64	2	32																																																									
19	Trim	1100	72	3	24																																																									
24	Demo Lights	1610	47	1	47																																																									
26	OH/Rough in	100	159	3	53																																																									
28	Wall Rough in	110	85	5	17																																																									
30	Lights	900	132	3	44																																																									
37	Trim	1100	72	3	24																																																									
	Total																																																																
	Missing																																																																

Manloading

Definition:

"The process of calculating the number of workers required to man a job - based on the Construction Schedule and your Job's budget information."

Manpower Calculation Activity #6

How to Calculate Manpower:

1st - Demo Lights Budget Hours = **141** hours
2nd - Duration Days = **3** days
3rd - 141 hrs / 3 days = **47** budget hours "per day"

47 Budget hours / 8 hours (per man per day)
= 6 men to finish the task on time

- Write 6 above the horizontal line for Demo Lights duration
- Complete for each activity
- Put the total men at the bottom

(Answers on the next slide)

GC's Sched. ID	Activity / Task	Activity Code	Budget Hours	Duration (Days)	Hours per Duration Day	1/3-1/7					1/10-1/14					1/17-1/21					1/24-1/28				
						M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights	1610	141	3	47	6	6	6																	
8	Layout/Sawcut	1600	68	6	11.3				2	2	2	2	2	2											
10	Feeder Conduit	200	120	4	30										4	4	4	4							
11	Switchgear	600	120	4	30										4	4	4	4							

Manloading Worksheet

with Top Answers

Handout #5

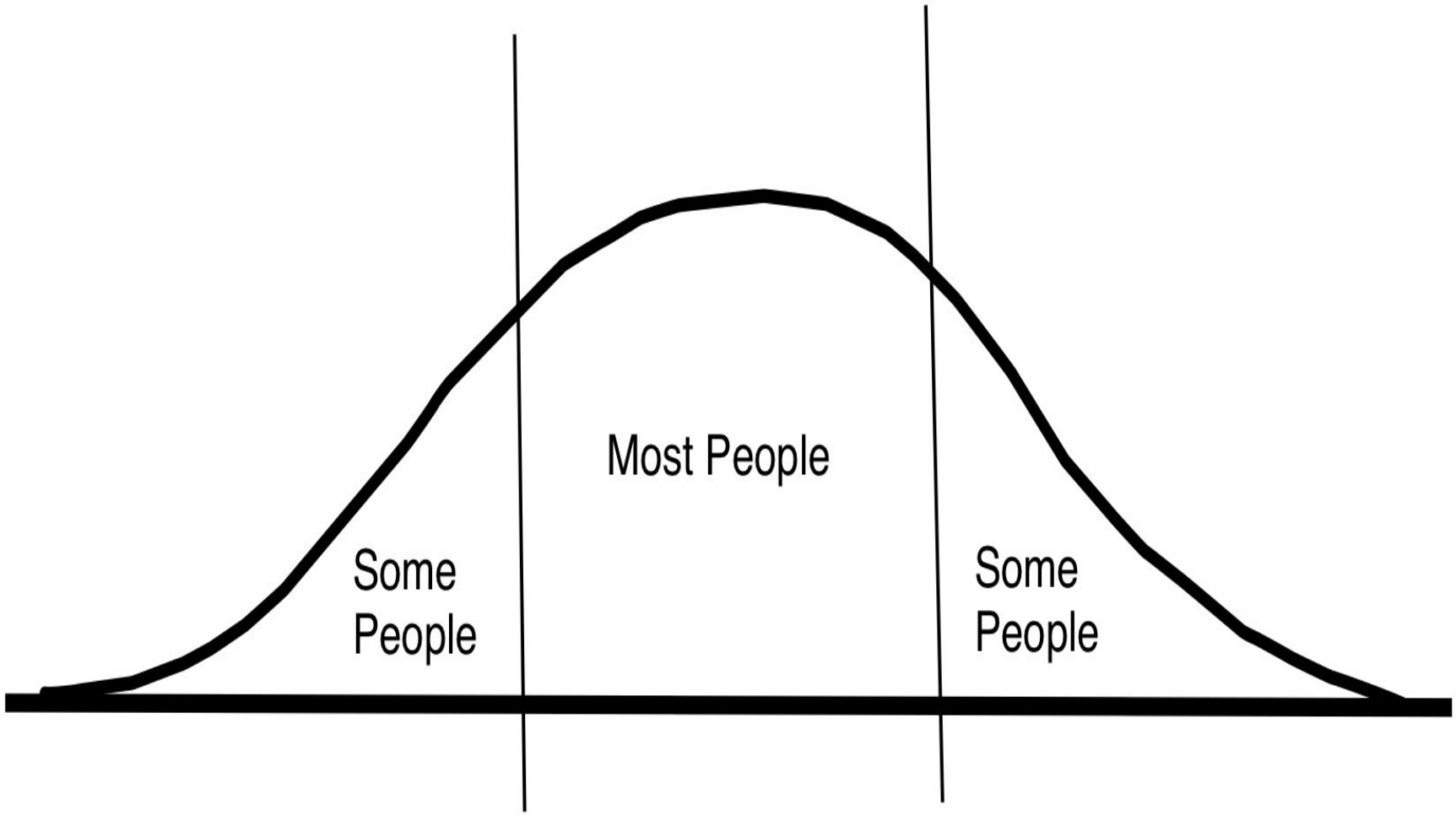
JOB: **Bally's Gym**

GC's Sched. ID	Activity / Task	Activity Code	Budget Hours	Duration (Days)	Hours per Duration Day
6	Demo Lights	1610	141	3	47
8	Layout/Sawcut	1600	68	6	11.3
10	Feeder Conduit	200	120	4	30
11	Switchgear	600	120	4	30
12	OH/Rough in	100	530	10	53
13	Wall Rough in	110	68	4	17
14	Cable Tray	500	64	4	16
15	Lights	900	220	5	44
16	UPS	602	64	2	32
19	Trim	1100	72	3	24
24	Demo Lights	1610	47	1	47
26	OH/Rough in	100	159	3	53
28	Wall Rough in	110	85	5	17
30	Lights	900	132	3	44
37	Trim	1100	72	3	24
	Total				
	Missing				
	Branch Wire	300	208		
	Feeder Wire	400	70		
	Generator	601	80		
	Fire Alarm	701	64		
	Motor Ctrl.	800	64		
	Grounding	1400	64		
	Pre-Fab		-		
	Total				

GC's Sched. ID	Activity / Task	1/3-1/7					1/10-1/14					1/17-1/21					1/24-1/28				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights	6	6	6																	
8	Layout/Sawcut				2	2	2	2	2	2											
10	Feeder Conduit										4	4	4	4							
11	Switchgear										4	4	4	4							
12	OH/Rough in														7	7	7	7	7	7	7
13	Wall Rough in														2	2	2	2			
14	Cable Tray																	2	2	2	2
24	Demo Lights				6																
26	OH/Rough in															7	7	7			
	Total	6	6	6	8	2	2	2	2	2	8	8	8	8	9	16	16	18	9	9	9

GC's Sched. ID	Activity / Task	1/31-2/4					2/7-2/11					2/14-2/18					2/21-2/25				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
12	OH/Rough in	7	7	7																	
15	Lights					6	6	6	6	6											
16	UPS											4	4								
19	Trim																3	3	3		
28	Wall Rough in							2	2	2	2	2									
30	Lights									6	6	6									
	Total	7	7	7		6	6	8	8	14	8	12	4				3	3	3		

GC's Sched. ID	Activity / Task	2/28-3/4					3/7-3/11					3/14-3/18					3/21-3/25				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
37	Trim																		3	3	3
	Total																		3	3	3


Most People
Some People
Some People

Flattening the Curve

You can “smooth out” the Manload Curve by:

- Taking items that were in our Electrical Budget but missing from the GC schedule and calculating the manpower needed for those tasks.
- Adding Pre-Fab – the best solution to reduce spikes in the manpower.

Pre Fab work that is done early in the project will subtract from our manpower later in the job - We’ve done the work ahead of time!

Manloading Worksheet

with all answers

Handout #7

JOB: **Bally's Gym**

GC's Sched. ID	Activity / Task	Activity Code	Budget Hours	Duration (Days)	Hours per Duration Day
6	Demo Lights	1610	141	3	47
8	Layout/Sawcut	1600	68	6	11.3
10	Feeder Conduit	200	120	4	30
11	Switchgear	600	120	4	30
12	OH/Rough in	100	530	10	53
13	Wall Rough in	110	68	4	17
14	Cable Tray	500	64	4	16
15	Lights	900	220	5	44
16	UPS	602	64	2	32
19	Trim	1100	72	3	24
24	Demo Lights	1610	47	1	47
26	OH/Rough in	100	159	3	53
28	Wall Rough in	110	85	5	17
30	Lights	900	132	3	44
37	Trim	1100	72	3	24
	Total				
	Missing				
	Branch Wire	300	208		
	Feeder Wire	400	70		
	Generator	601	80		
	Fire Alarm	701	64		
	Motor Ctrl.	800	64		
	Grounding	1400	64		
	Pre-Fab		-		
	Total				

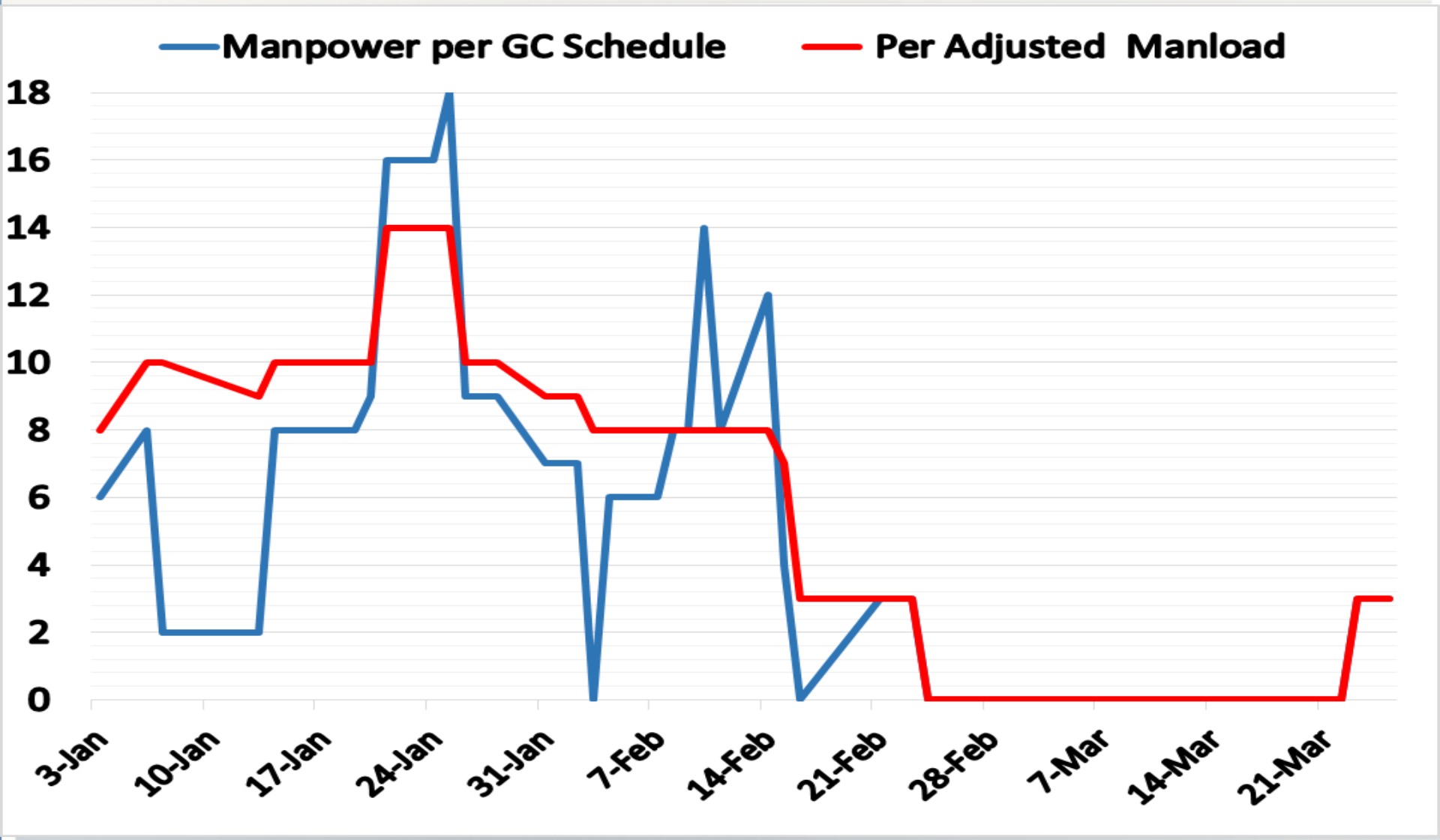
GC's Sched. ID	Activity / Task	1/3-1/7					1/10-1/14					1/17-1/21				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights	6	6	6												
8	Layout/Sawcut				2	2	2	2	2	2						
10	Feeder Conduit										4	4	4	4		
11	Switchgear										4	4	4	4		
12	OH/Rough in														7	7
13	Wall Rough in														2	2
14	Cable Tray															
15	Lights															
16	UPS															
19	Trim															
24	Demo Lights				6											
26	OH/Rough in															7
28	Wall Rough in															
30	Lights															
37	Trim															
	Total	6	6	6	8	2	2	2	2	2	8	8	8	8	9	16
	Missing															
	Branch Wire															
	Feeder Wire															
	Generator						2	2	2	2	2					
	Fire Alarm											2	2	2	1	
	Motor Ctrl.							3	3	3						
	Grounding					4	4									
	Pre-Fab	2	4	4	2	4	2	2	2	2						-2
	Total	8	10	10	10	10	10	9	9	9	10	10	10	10	10	14

GC's Sched. ID	Activity / Task	1/24-1/28					1/31-2/4					2/7-2/11				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights															
8	Layout/Sawcut															
10	Feeder Conduit															
11	Switchgear															
12	OH/Rough in	7	7	7	7	7	7	7	7							
13	Wall Rough in	2	2													
14	Cable Tray		2	2	2	2										
15	Lights										6	6	6	6	6	
16	UPS															
19	Trim															
24	Demo Lights															
26	OH/Rough in	7	7													
28	Wall Rough in												2	2	2	2
30	Lights														6	6
37	Trim															
	Total	16	18	9	9	9	7	7	7		6	6	8	8	14	8
	Missing															
	Branch Wire						2	2	2	8	2	2				
	Feeder Wire			3	3	3										
	Generator															
	Fire Alarm															
	Motor Ctrl.															
	Grounding															
	Pre-Fab	-2	-4	-2	-2	-2									-6	
	Total	14	14	10	10	10	9	9	9	8	8	8	8	8	8	8

GC's Sched. ID	Activity / Task	2/14-2/18					2/21-2/25					2/28-3/4				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights															
8	Layout/Sawcut															
10	Feeder Conduit															
11	Switchgear															
12	OH/Rough in															
13	Wall Rough in															
14	Cable Tray															
15	Lights															
16	UPS	4	4													
19	Trim						3	3	3							
24	Demo Lights															
26	OH/Rough in															
28	Wall Rough in	2														
30	Lights	6														
37	Trim															
	Total	12	4				3	3	3							
	Missing															
	Branch Wire		3	3	3	3										
	Feeder Wire															
	Generator															
	Fire Alarm															
	Motor Ctrl.															
	Grounding															
	Pre-Fab	-4														
	Total	8	7	3	3	3	3	3	3							

GC's Sched. ID	Activity / Task	3/7-3/11					3/14-3/18					3/21-3/25				
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6	Demo Lights															
8	Layout/Sawcut															
10	Feeder Conduit															
11	Switchgear															
12	OH/Rough in															
13	Wall Rough in															
14	Cable Tray															
15	Lights															
16	UPS															
19	Trim															
24	Demo Lights															
26	OH/Rough in															
28	Wall Rough in															
30	Lights															
37	Trim													3	3	3
	Total													3	3	3
	Missing															
	Branch Wire															
	Feeder Wire															
	Generator															
	Fire Alarm															
	Motor Ctrl.															
	Grounding															
	Pre-Fab															
	Total													3	3	3

Manpower Graph Per GC Schedule



Bad Curve - What are we going to do??

Solutions to Flatten the Manpower Curve?

- Meeting with the GC and proposing changes to the Schedule before the project is in full swing.
- Adjusting the duration of tasks, if possible.
- Rearranging the sequence of some tasks, if possible.

Putting the Information to Work

How Do I Use This Info from the Manloading Chart?

Take the Manload info and use it to set up the Two Week Planner.

You now have:

- **The tasks that need to be completed**
- **The duration to complete each task**
- **The number of workers it should take**

Take this information and plan your work.

Order your tools and materials.

Planning Sheet Activity #7

Two Week Look Ahead Schedule

Job Name: January 3, 2010															Project Manager: Frieda Otero	
Date: Bally's Gym															Field Foreman:	
		Week 1							Week 2							
	Date	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Estimated Work Completion Date	Resources Needed on the Job: Tools, Equipment, Material, Notes
Activity	Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
Demo Lights		6	6	6	6												See Note 1

Handout #9

Two Week Look Ahead Schedule

Job Name: **Bally's Gym**

Project Manager: **PM Name**

Date: **1/3/10**

Field Foreman: **FM Name**

		Week 1							Week 2							
	Date	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Activity	Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	People Doing Work
Demo Lights (Main Flr)		6	6	6												Jimmy, Dan, Joe, Paul,
Demo Lights (Locker Rm)					6											John, Billy
Layout / Sawcut					2	2			2	2	2	2				Patrick & Mack
Feeder Conduit													4			Jimmy, Dan, John, Billy
Switchgear													4			Joe, Paul, Patrick, Mack
Possible Fill In Items																
Motor Control										3	3	3				?
Pre-Fab		2	4	4	2	4			2	2	2	2				Patrick & Mack
Grounding						4			4							Jimmy, Dan, John, Billy
Generator									2	2	2	2	2			Joe and Paul
Total Labor		8	10	10	10	10			10	9	9	9	10			

Conclusion

With effective Manloading and Scheduling you can:

- Manage the job according to schedule
- Manage manpower to avoid peaks and valleys
- Influence the GC Schedule
- Manage manpower effectively, and within budget