Advanced SolidWorks course curriculum development 03/20/2017

Group: F

- Naser Alhajri (Client Contact)
- Yousef Alhaddad (Project Manager)
- Mohammad Alfadhli (Secretary/ Document manger)
- Muhammad Alhajri (Web Designer)
- Abdualziz Alajmi (Budget Liaison)

Project Description

- NAU has a class which is ME 180 (Engineering Graphics), which contain:
  - There are small amount of modules.
  - Using SolidWorks as main program for the course
  - Doing parts, assembly and drawing sheet in SolidWorks.
  - Using basic features and tools, such as:
    - Extrude boss/cut
    - Revolve
    - Mirror
    - Fillet

Project Description

- ME 380 Advanced SolidWorks
- It is the upper level course for ME 180, which contain:
  - It will have more 3D sketches on paper with advance techniques.
  - Advanced tutorials will be use for entire semester.
  - Project will have many theme ideas.
  - Apply advanced features and tools like;
    - Animation
    - Rendering
    - Equations
    - Advanced sweeping

Designs Considered: theme projects

Table 1: Ideas on theme projects

1.Themes	Lego	Advanced tutorial from Solid Work	Apply real world experiences
Picture			
Advantages	Easy to build and have multiple shapes	Make students more professional	Make students creative and inspired
Disadvantages	Take long time to do it	Difficulty to make it	Hard to get measurements

Designs Considered: course structures

Table 2: Course structures

Course structure	Syllabus A	Syllabus B	Syllabus C
Exams	60%	25%	30%
Quizzes	5%	7%	15%
Homework	20%	50%	25%
Project	10%	15%	20%
Attendance	5%	3%	10%
Advantages	High percentage in Homework and project	High percentage in Homework	High percentage in Homework and attendance
Disadvantages	High percentage in exams	Not many exams	High percentage in quizzes and project

Designs Considered: outside help

Table 3: Outside help

3.Outside help	TA sessions	Videos from You Tube	Group work
Picture			
Advantages	Get more help and cover what students miss in lectures	Showing step by step and get new ideas	More useful information and share ideas
Disadvantages	Time conflict with other classes	Very fast for some students to catch up	Cheating and copy from each other

Abdulaziz Alajmi
03/20/2017
Advanced SolidWorks course curriculum development

Design Selected: Pugh chart

Table 4: Pugh chart

Ideas	Themes project			Course structures			Outside class help					
Criteria \ Design #	1	2	3	4	5	6	7	8	9	10	11	12
More advanced work than ME 180	+	+	D	-	D	+	+	-	+	-	D	+
Hand drawing 3D skills on paper	-	-	A	-	A	+	+	-	+	-	A	+
Quizzes and tests on their ability on Solid Work	-	+	T	+	T	+	+	+	-	-	T	-
Use real world experiences and apply it in the course	-	+	U	-	U	-	-	-	+	-	U	-
Structure course around themes	+	+	M	-	M	-	+	+	-	-	M	-
Work in groups in some assignments inside and outside the class	-	+		+		+	+	-	+	-		-
Σ +	2	5		2		4	5	2	4	0		2
Σ -	4	1		4		2	1	4	2	6		4

Muhammad Alhajri
03/20/2017
Advanced SolidWorks course curriculum development

Design Selected: decision matrix

Table 5: Decision Matrix

Criteria	Weight	Design #2	Design #7	Design #6
		Advanced Tutorial from Solid Work	TA Sessions	Syllabus C
More advanced work than ME 180	18%	9	4	7
Hand drawing 3D skills on paper	17%	1	7	5
Quizzes and tests on their ability on Solid Work	20%	8	9	7
Use real world experiences and apply it in the course	16%	6	5	1
Structure course around themes	12%	7	3	4
Work in groups in some assignments inside and outside the class	17%	6	8	3
Total	100%	37%	36%	27%

Muhammad Alhajri
03/20/2017
Advanced SolidWorks course curriculum development

Budget

▶ **Cost:**

  ▶ Our project will depends on the stuff that we need for the new course and we can propose it to the client.

  ▶ For example:

    ▶ Basic Engineering Drafting Kit/ cost ($48.92)

    ▶ 3D printer/ cost(depends on weight)
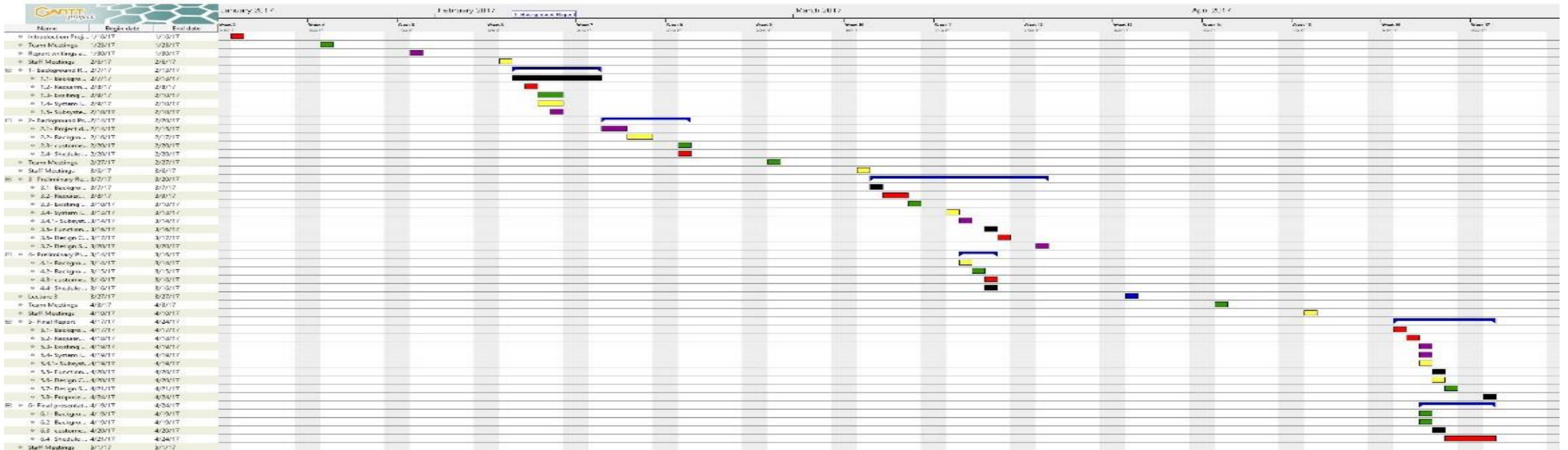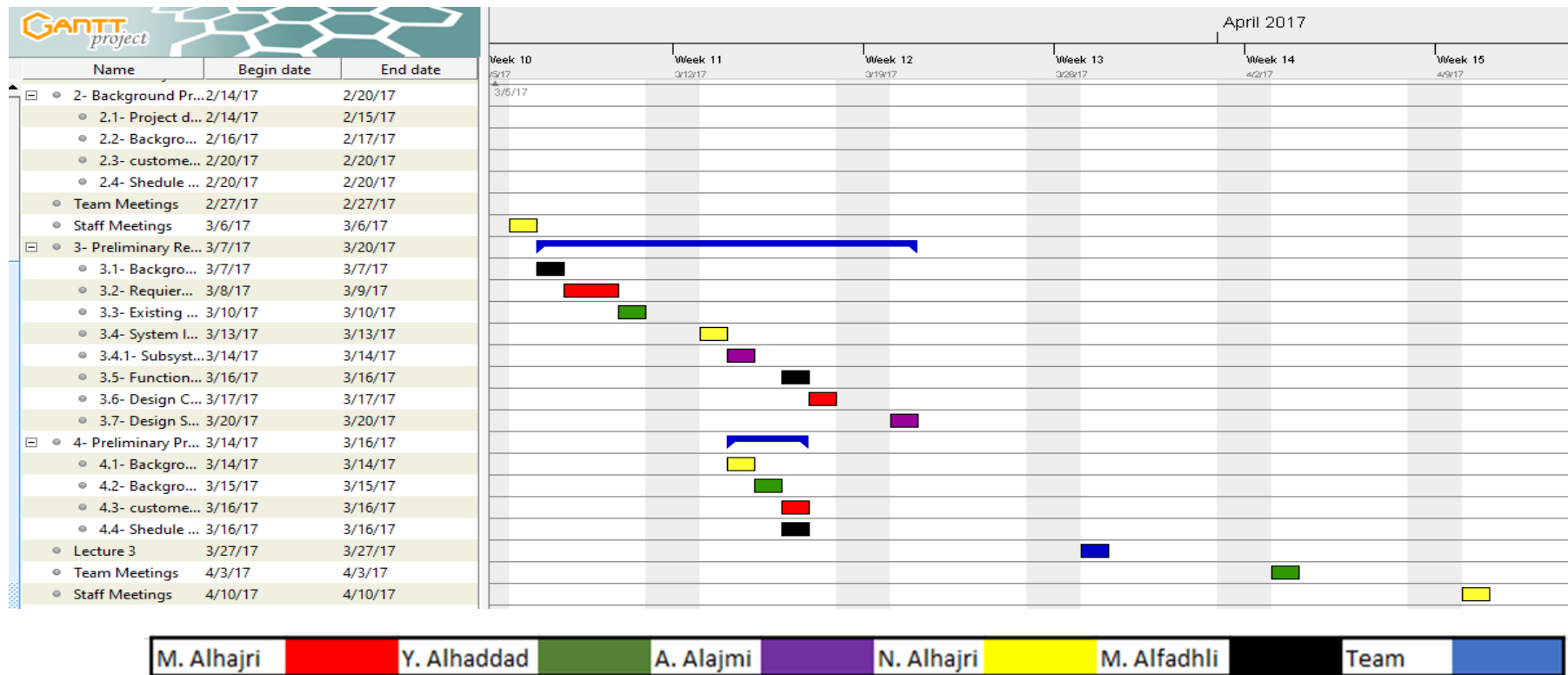
    ▶ Lego for themes/cost ($9.99)

[2]

[1]

[3]

Gantt chart & Scheduling: entire course

Mohammad Alfadhli
03/20/2017
Advanced SolidWorks course curriculum development

Gantt chart & Scheduling: zoom in for preliminary report

Mohammad Alfadhli
03/20/2017
Advanced SolidWorks course curriculum development

References

- [1] https://shop.lego.com/en-US/Super-Soarer-31042
- [2] http://www.draftingsteals.com/20467.html?gclid=CIyRxOWTm9ICFYqBfgodvh4LMQ
- [3] http://uk.pcmag.com/printer-reviews/36506/guide/the-best-3d-printers-of-2017