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Project Management
Assignment 1

Peter
12345678

Biance
12345678

Carmen
12345678

Eduard
12345678

Sarel
12345678

Daniel Robinson
18361137

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Executive Summary

In today's day and age, engineers are expected to be versatile in more aspects than ever before. One of these is project management. This assignment hopes to introduce and ready engineering students for project management and as close to reality as possible. For example, the teams of students are multi-disciplinary, and had most probably not had prior experience working together.

For this particular assignment, a project structure / 'blueprint' has been designed in order to manage the creation of a beer brewery.

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2.1 Project Objectives

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Table 1: Milestones

Milestone	Critical Path Tasks	Task Group	Task Duration (Days)	Target Date
1	Evaluate Market	Market Assessment	12	27-04-2017
	Develop Business Opportunity		14	
	Customer Preference Study		21	
	Business Evaluation (NPV, etc.)		4	
2	Design and Development Plan	Design	6	06-06-2017
	Design Specifications		22	
3	Advertising Campaign	Commercialization	28	14-07-2017
4	Design Labeling	Design	5	03-08-2017
	Approve Design		4	
	Initial Engineering Specifications	Engineering	5	
5	Design Verification Activities	Engineering	7	01-09-2017
	Verification Design Review		4	
	Release Pre-production Specifications		10	
6	Build Functional Model	Engineering	18	27-09-2017
7	Issue Sample (Production Equivalent)	Procurement	5	24-10-2017
	Perform Supplier Process Capability	Supplier Quality	14	
8	Process Engineering Plan	Manufacturing	15	14-11-2017
9	Validation Design Review	Engineering	4	24-11-2017
	Approve Model Design		4	
10	Qualify Supplier	Supplier Quality	10	08-12-2017
	Design Transfer Activities	Engineering	7	
	Product Release Meetings	Engineering Quality	3	
11	Develop Production Control Plan	Manufacturing	8,5	08-01-2018
	Approve Production Parts		5	
	Contracting for Deliveries		8	
12	Submit Production Purchase Order	Manufacturing	2	31-01-2018
	Production Pilot Test		5	
	Debugging Production System		4	
	Production Release		3	
	Product Launch	Commercialization	3	

2.4 Work Breakdown Structure

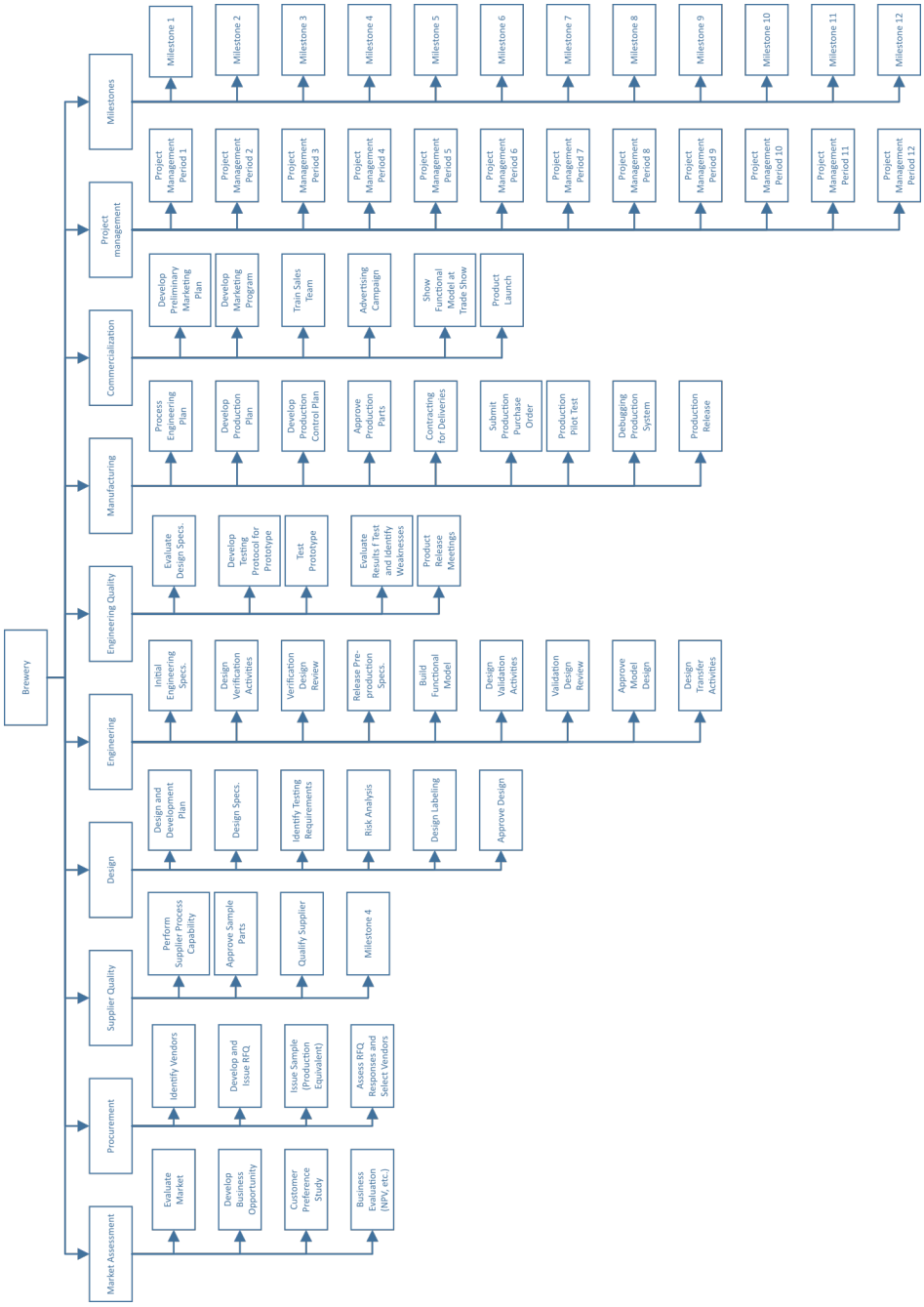

Figure 1: Work Breakdown Structure

2.5 Technical Requirements

2.5.1 Summary of product

There are four types of beer that need to be manufactured namely: Weiss, Ale and two different flavoured lagers. All the beers utilize the same brewing system with slight alterations needed to create each unique beer. These alterations include different fermenting processes and different grains used. There needs to be four brewing systems working simultaneously in order to produce a sufficient amount of all beers.

2.5.2 Product Requirements

- There should be 4 varieties of beer
- Each beer will be sold in 500ml glasses
- The temperature of the beer should always be carefully monitored from the brewing process until the product is sold to the customer
- Control systems should be put in place in order to monitor and control each stage of the brewing process
- The quality of the final product needs to be of a high standard in order to compete in the respective market
- The final product should be marked at a reasonable price in order to appeal to a wider target market (students)
- The process compromises of 12 stages that need to be carefully executed in order to produce the best possible product

2.5.3 Project Requirements

- Project commences 20th February 2017 and terminates 3rd May 2017
- All the suppliers of the company should be identified and have their capabilities assessed
- The final product must be designed completely. The components should include specifications, risk analysis, design analysis, production process and possible testing requirements.
- A full quality assessment must be done throughout all stages of production of the final product

2.6 Limits and Exclusions

2.6.1 Limits

2.6.2 Exclusions

2.7 Review and Approval

3 Project Baseline Plan

3.1 Baseline Commentary

4 Project Budget

The estimated budget and estimated hours provided by Sim4 project was used as a guideline of what should be spent during each period to ensure that the project would stay within the budget of $380 000.

To calculate the budget the effectiveness of the resources were brought into consideration. An assumption was made that all resources will work at an 80% effectiveness rate. The estimated hours of each task as well as the safety margin of 80% effectiveness was used to determine the hours worked for each task using the formula provided.

$$Actual\ time\ worked\ (hours)\ =\ \frac{Estimated\ time\ (hours)}{\%effectiveness}$$

The budget forecast is provided in Appendix

Appendices

Appendix A: Budget Documentation and Analysis

PERIOD 1

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Evaluate market	Market Assessment	$4 800,00	96	$50,00
Develop Business opportunity	Market Assessment	$10 080,00	112	$90,00
Customer preference study	Market Assessment	$8 400,00	168	$50,00
Business evaluation (NPV, etc.)	Market Assessment	$4 000,00	32	$125,00
Project Management Period 1	Project Management	$25 000,00	200	$125,00
		$52 280,00		

Total cost	$52 280,00
Budget left over	$327 720,00

PERIOD 2

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Design and development plan	Design	$2 400,00	48	$50,00
Design specs.	Design	$8 800,00	176	$50,00
Develop preliminary marketing plan	Commercialization	$3 600,00	40	$90,00
Develop marketing program	Commercialization	$10 800,00	120	$90,00
Project Management Period 2	Project Management	$14 000,00	112	$125,00
		$39 600,00		

Total cost	$91 880,00
Budget left over	$288 120,00

Figure 2: Budget Forecast

PERIOD 3

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Identify testing requirements	Design	$4 000,00	80	$50,00
Risk analysis	Design	$10 000,00	80	$125,00
Train sales team	Commercialization	$8 800,00	176	$50,00
Advertising campaign	Commercialization	$11 200,00	224	$50,00
Project Management Period 3	Project Management	$14 000,00	112	$125,00
		$48 000,00		

Total cost	$139 880,00
Budget left over	$240 120,00

PERIOD 4

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Design labeling	Design	$2 000,00	40	$50,00
Approve design	Design	$1 600,00	32	$50,00
Initial engineering specs.	Engineering	$2 000,00	40	$50,00
Project Management Period 4	Project Management	$13 000,00	104	$125,00
		$18 600,00		

Total cost	$158 480,00
Budget left over	$221 520,00

Figure 3: Budget Forecast

PERIOD 5

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Design verification activities	Engineering	$4 200,00	56	$75,00
Verification design review	Engineering	$1 600,00	32	$50,00
Release pre-production specifications	Engineering	$4 000,00	80	$50,00
Project Management Period 5	Project Management	$15 000,00	120	$125,00
		$24 800,00		

Total cost	$183 280,00
Budget left over	$196 720,00

PERIOD 6

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Identify vendors	Procurement	$2 800,00	56	$50,00
Develop and Issue RFQ	Procurement	$2 400,00	48	$50,00
Build functional model	Engineering	$10 800,00	144	$75,00
Evaluate design specifications	Engineering Quality	$4 000,00	80	$50,00
Project Management Period 6	Project Management	$9 000,00	72	$125,00
		$29 000,00		

Total cost	$212 280,00
Budget left over	$167 720,00

Figure 4: Budget Forecast

PERIOD 7

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Issue sample (production equivalent)	Procurement	$3 000,00	40	$75,00
Perform supplier process capability	Supplier Quality	$5 600,00	112	$50,00
Develop testing protocol for prototype	Engineering Quality	$3 200,00	64	$50,00
Project Management Period 7	Project Management	$11 000,00	88	$125,00
		$22 800,00		

Total cost	$235 080,00
Budget left over	$144 920,00

PERIOD 8

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Approve sample parts	Supplier Quality	$4 800,00	64	$75,00
Design validation activities	Engineering	$2 000,00	40	$50,00
Test prototype	Engineering Quality	$4 000,00	80	$50,00
Process engineering plan	Manufacturing	$6 000,00	120	$50,00
Show functional model at trade show	Commercialization	$2 160,00	24	$90,00
Project Management Period 8	Project Management	$3 000,00	24	$125,00
		$21 960,00		

Total cost	$257 040,00
Budget left over	$122 960,00

Figure 5: Budget Forecast

PERIOD 9

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Validation design review	Engineering	$4 000,00	32	$125,00
Approve model design	Engineering	$2 400,00	32	$75,00
aluate results of tests and identify weakn	Engineering Quality	$2 400,00	48	$50,00
Project Management Period 9	Project Management	$4 000,00	32	$125,00
		$12 800,00		

Total cost	$269 840,00
Budget left over	$110 160,00

PERIOD 10

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Qualify Supplier	Supplier Quality	$4 000,00	80	$50,00
Design transfer activities	Engineering	$4 200,00	56	$75,00
Product release meetings	Engineering Quality	$3 000,00	24	$125,00
Develop production plan	Manufacturing	$2 400,00	48	$50,00
Project Management Period 10	Project Management	$5 000,00	40	$125,00
		$18 600,00		

Total cost	$288 440,00
Budget left over	$91 560,00

Figure 6: Budget Forecast

PERIOD 11

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Assess RFQ responses and select vendo	Procurement	$4 000,00	80	$50,00
Develop production control plan	Manufacturing	$3 400,00	68	$50,00
Approve production parts	Manufacturing	$2 000,00	40	$50,00
Contracting for deliveries	Manufacturing	$3 200,00	64	$50,00
Project Management Period 11	Project Management	$13 000,00	104	$125,00
		$25 600,00		

Total cost	$314 040,00
Budget left over	$65 960,00

PERIOD 12

Simulation Estimate

TASK NAME	TYPE	Estimated Cost ($)	Estimated Time (hours)	Estimated Cost per Hour
Submit production purchase order	Manufacturing	$800,00	16	$50,00
Production pilot test	Manufacturing	$2 000,00	40	$50,00
Debugging production system	Manufacturing	$1 600,00	32	$50,00
Production release	Manufacturing	$1 200,00	24	$50,00
Product launch	Commercialization	$3 000,00	24	$125,00
Project Management Period 12	Project Management	$10 000,00	80	$125,00
		$18 600,00		

Total cost	$332 640,00
Budget left over	$47 360,00

Figure 7: Budget Forecast

A.1 Direct Resource Costs

A.2 Training Costs

A.3 Other Managerial Decisions

Appendix B: Risk Register

Appendix C: Meeting Minutes