

APPENDIX E
GANTT CHART/KEY MILESTONES OF PROJECT

Gantt Chart of Final Year Project
Design Optimization of a 2-Phase (Gas/Liquid) Separator

ACTIVITY	DURATION	2009									
		AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Natural Gas and Separator Design Literature Review											
Critical review for various types of gas/liquid separation law and equation											
Used Flash Calculation to find properties and flow rates of both gas and liquid stream											
Propose Mathematical Model for Optimize Separator Design											
Simulation Mathematical Model using production forecast of Baram Data (EXCEL Solver)											
Analysis effect on constraint design and separator dimension											
Final Report Writing											

APPENDIX F

Flash Calculation Spreadsheet

				LN = moles of comp. N in the liquid phase			VN = moles of comp. N in the vapor phase					
	Inlet Component	Mole Fraction %	K value graphical	V/L = 1.5	V/L=0.5	V/L=1		MW	VN x MW _N	LN x MW _N	SG _N	LN x MW _N /SG _N
1	H2O	0.7935	0.02785	0.761681	0.782602	0.772000	0.021500	18.015	0.39	13.91	1	13.90757649
2	CO2	0.003	6.77	0.000269	0.000684	0.000386	0.002614	44.01	0.12	0.02	0.83	0.020472624
3	Nitrogen	0.0017	58	0.000019	0.000057	0.000029	0.001671	28.01	0.05	0.00	0.81	0.00099638
4	Methane	0.1336	37.5	0.002334	0.006765	0.003470	0.130130	16.04	2.09	0.06	0.3	0.185536277
5	Ethane	0.0105	8.3	0.000781	0.002039	0.001129	0.009371	30.07	0.28	0.03	0.36	0.094305556
6	Propane	0.0049	8.5	0.000356	0.000933	0.000516	0.004384	44.1	0.19	0.02	0.51	0.044600619
7	i-Butane	0.0018	0.98	0.000729	0.001208	0.000909	0.000891	58.12	0.05	0.05	0.56	0.094350649
8	n-Butane	0.002	0.72	0.000962	0.001471	0.001163	0.000837	58.12	0.05	0.07	0.58	0.116519647
9	i-Pentane	0.0009	0.32	0.000608	0.000776	0.000682	0.000218	72.15	0.02	0.05	0.62	0.079343842
10	n-Pentane	0.0009	0.28	0.000634	0.000789	0.000703	0.000197	72.15	0.01	0.05	0.6	0.084550781
11	n-Hexane	0.0014	0.98	0.000567	0.000940	0.000707	0.000693	86.178	0.06	0.06	0.66	0.092324151
12	n-Heptane	0.0058	0.32	0.003919	0.005000	0.004394	0.001406	86.178	0.12	0.38	0.69	0.548783926
13	n-Octane	0.0026	0.013	0.002550	0.002583	0.002567	0.000033	114.232	0.00	0.29	0.71	0.412946067
14	n-Nonane	0.0023	0.0044	0.002285	0.002295	0.002290	0.000010	128.259	0.00	0.29	0.72	0.407921396
15	n-Decane	0.0349	0.0018	0.034806	0.034869	0.034837	0.000063	142.286	0.01	4.96	0.73	6.790217882
TOTAL		0.9998				0.825781	0.152518		3.44	20.24		22.88044629

APPENDIX G
Mechanical Drawing Optimize (V-200) Separator