PHYS2211L - Principles of Physics Laboratory I
Conservation of Energy

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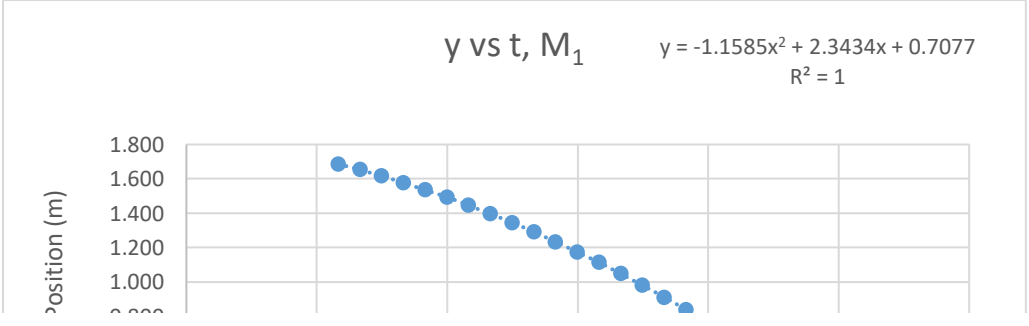
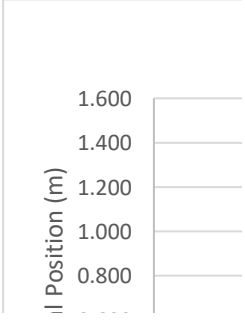
Partners: None

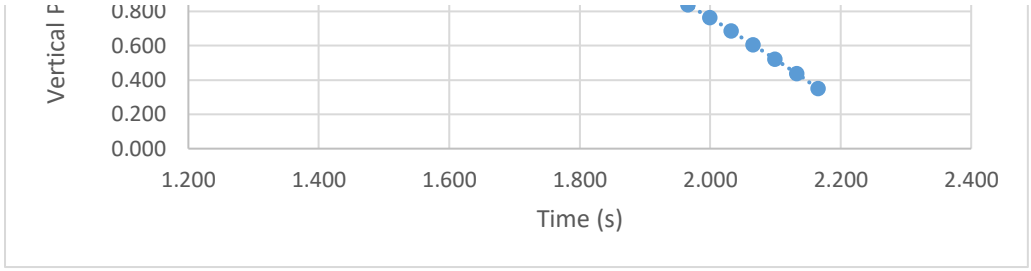
Annex A - Data and Calculations

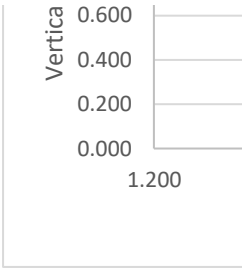
M_1=	0.059	kg
M_2=	0.029	kg
m=	0.007	kg
r=	0.020	m

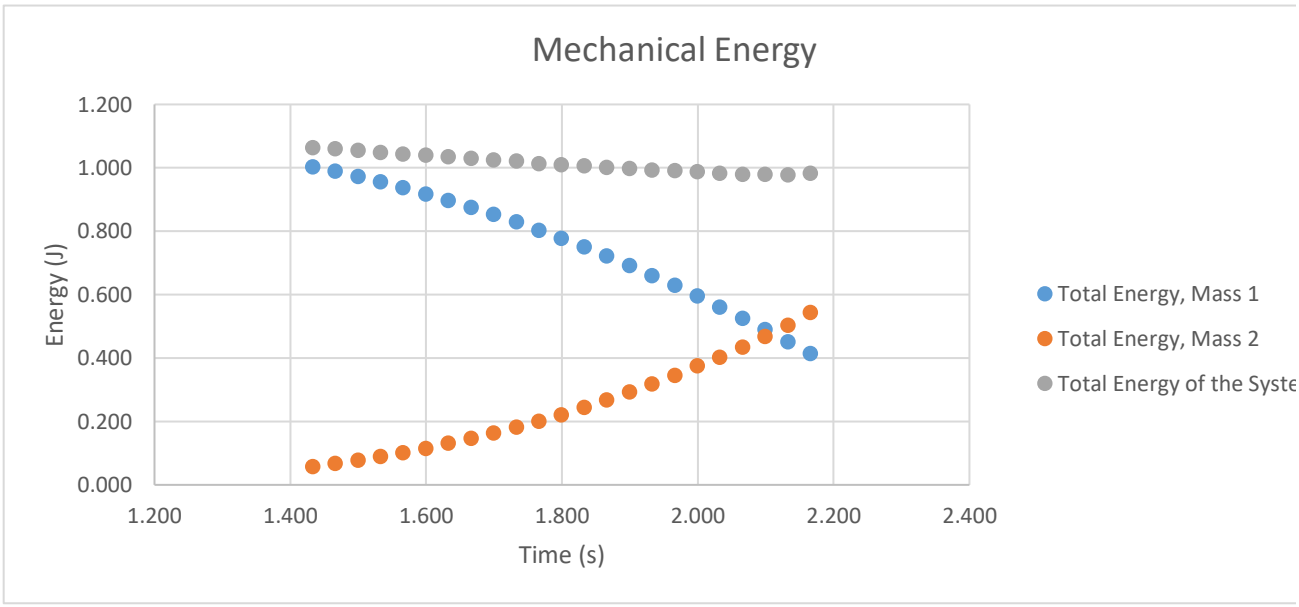
Mass 1						Mass 2	
t (s)	y (m)	v (m/s)	U (J)	K (J)	E (J)	t (s)	y (m)
1.433	1.685	-0.977	0.975	0.028	1.003	1.433	0.180
1.466	1.655	-1.054	0.957	0.033	0.989	1.466	0.206
1.500	1.617	-1.131	0.935	0.038	0.973	1.500	0.234
1.533	1.578	-1.209	0.912	0.043	0.955	1.533	0.266
1.566	1.536	-1.286	0.888	0.049	0.937	1.566	0.300
1.600	1.492	-1.363	0.862	0.055	0.917	1.600	0.338
1.633	1.446	-1.440	0.836	0.061	0.897	1.633	0.379
1.666	1.396	-1.517	0.807	0.068	0.875	1.666	0.422
1.700	1.344	-1.594	0.777	0.075	0.852	1.700	0.469
1.733	1.291	-1.672	0.746	0.082	0.829	1.733	0.519
1.766	1.232	-1.749	0.712	0.090	0.803	1.766	0.564
1.799	1.173	-1.826	0.678	0.098	0.776	1.799	0.620
1.833	1.112	-1.903	0.643	0.107	0.750	1.833	0.680
1.866	1.047	-1.980	0.605	0.116	0.721	1.866	0.744
1.899	0.980	-2.057	0.567	0.125	0.692	1.899	0.810
1.933	0.908	-2.135	0.525	0.134	0.660	1.933	0.877
1.966	0.837	-2.212	0.484	0.144	0.628	1.966	0.954
1.999	0.762	-2.289	0.440	0.155	0.595	1.999	1.032
2.033	0.684	-2.366	0.395	0.165	0.560	2.033	1.104
2.066	0.603	-2.444	0.349	0.176	0.525	2.066	1.186
2.099	0.521	-2.521	0.301	0.187	0.489	2.099	1.280
2.133	0.436	-2.598	0.252	0.199	0.451	2.133	1.376
2.166	0.350	-2.675	0.202	0.211	0.414	2.166	1.489



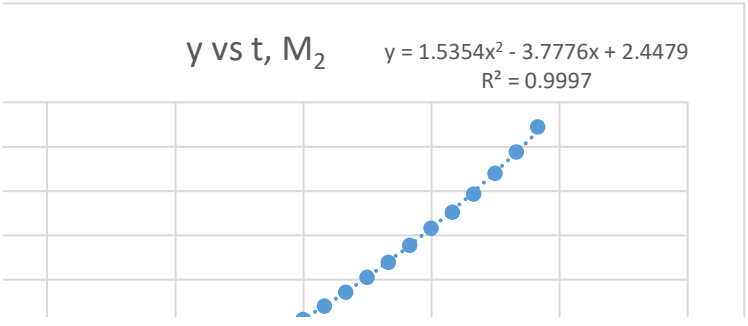


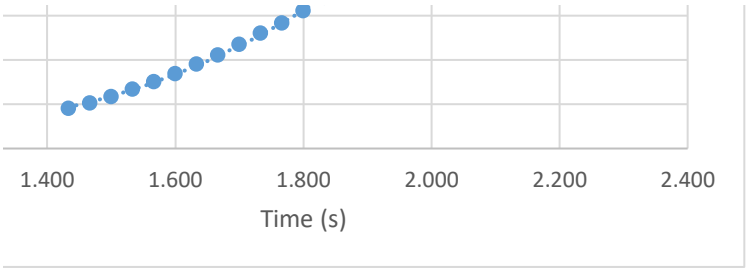

Vertical P
0.800
0.600
0.400
0.200
0.000
1.200
1.400
1.600
1.800
2.000
2.200
2.400
Time (s)


Vertica
0.600
0.400
0.200
0.000
1.200


Mechanical Energy
Energy (J)
1.200
1.000
0.800
0.600
0.400
0.200
0.000
1.200
1.400
1.600
1.800
2.000
2.200
2.400
Time (s)
Total Energy, Mass 1
Total Energy, Mass 2
Total Energy of the Syste

V (m/s)	U (J)	K (J)	E (J)	$E_{tot,\ 1+2}$ (J)	Spool K (J)	E_{tot} (J)
0.622	0.051	0.006	0.057	1.059	0.003	1.063
0.725	0.058	0.008	0.066	1.056	0.004	1.059
0.827	0.066	0.010	0.076	1.049	0.004	1.054
0.930	0.076	0.013	0.088	1.043	0.005	1.048
1.032	0.085	0.015	0.101	1.037	0.006	1.043
1.135	0.096	0.019	0.115	1.032	0.007	1.038
1.237	0.108	0.022	0.130	1.027	0.007	1.034
1.339	0.120	0.026	0.146	1.021	0.008	1.029
1.441	0.133	0.030	0.163	1.016	0.009	1.024
1.544	0.147	0.035	0.182	1.011	0.010	1.021
1.646	0.160	0.039	0.200	1.002	0.011	1.013
1.748	0.176	0.044	0.221	0.997	0.012	1.009
1.851	0.193	0.050	0.243	0.993	0.013	1.006
1.953	0.211	0.055	0.267	0.988	0.014	1.001
2.055	0.230	0.061	0.291	0.983	0.015	0.998
2.158	0.249	0.067	0.317	0.977	0.016	0.992
2.260	0.271	0.074	0.345	0.974	0.017	0.991
2.362	0.293	0.081	0.374	0.969	0.018	0.987
2.464	0.314	0.088	0.402	0.962	0.020	0.982
2.568	0.337	0.096	0.433	0.958	0.021	0.979
2.669	0.364	0.103	0.467	0.956	0.022	0.978
2.772	0.391	0.111	0.502	0.953	0.024	0.977
2.874	0.423	0.120	0.543	0.957	0.025	0.982





E_i=	1.06281 J
E_f=	0.98160 J
ΔE=	-0.08120 J
%Disc=	-7.64038