CIPFA The Chartered Institute of Public Finance & Accountancy

Strategic Case Study M22 paper

Mathematical Computation to Questions

Revised NPV with CEOs new assumptions

Time			0	1	2	3	4	5	Marks
Income									
total classroom fees (£ 000's)				£100	£315	£551	£579	£608	1
online fees (£ 000's)				£50	£157	£276	£405	£547	1
total income (£ 000's)			£0	£150	£472	£827	£984	£1,155	
DF	10%		1.000	0.909	0.826	0.751	0.683	0.621	
PV			£0.0	136.36	390.25	621.34	671.81	717.29	
PV of income (£ 000's)			2537.05						
Expenditure									
cost of setting up IT dept (£ 000's)			-£2,200						
lecturers and admin pay (£ 000's)				-£280	-£306	-£335	-£366	-£400	
savings from the loss of staff in other departments (£ 000's)				£320	£320	£320	£320	£320	
lost earnings from students in axed departments (£ 000.s)				-£80	-£88	-£97	-£106	-£117	
total expenditure (£ 000's)			-£2,200	-£40	-£74	-£112	-£152	-£197	
DF	10%		1.000	0.909	0.826	0.751	0.683	0.621	
PV			-£2,200.0	-36.36	-61.16	-83.77	-103.64	-122.32	
PV of expenditure (£ 000's)			-2607.26						
NPV (£ 000's)			-70.21						2
students on the course									
classroom				20	60	100	100	100	
online				20	60	100	140	180	
fees									
classroom			£'000	5	5.25	5.51	5.79	6.08	1
online course fees		50%	£'000	2.5	2.62	2.76	2.89	3.04	1
IT department									
no of lecturers				4	4	4	4	4	
no of admin staff				2	2	2	2	2	
lecturers pay				60.00	66.00	72.60	79.86	87.85	
admin pay				20.00	21.00	22.05	23.15	24.31	
Pay of lecturers made redundant				40	40	40	40	40	
no of lecturers made redundant				8	8	8	8	8	

Revised NPV at 8% discount rate

Time		0	1	2	3	4	5
Income							
total classroom fees (£ 000's)			£100	£315	£551	£579	£608
online fees (£ 000's)			£50	£157	£276	£405	£547
total income (£ 000's)		0	£150	£472	£827	£984	£1,155
DF	0.1	1	0.926	0.857	0.794	0.735	0.681
PV		0	138.90	404.68	656.64	722.95	786.69
PV of income (£ 000's)		2709.85					
Expenditure							
cost of setting up IT dept (£ 000's)		-2200					
lecturers and admin pay (£ 000's)			-£280	-£306	-£335	-£366	-£400
savings from the loss of staff in other departments (£ 000's)			£320	£320	£320	£320	£320
lost earnings from students in axed departments (£ 000.s)			-£80	-£88	-£97	-£106	-£117
total expenditure (£ 000's)		-2200	-40.00	-74.00	-111.50	-151.75	-197.00
DF	0.08	1	0.926	0.857	0.794	0.735	0.681
PV		-2200	-37.04	-63.42	-88.53	-111.53	-134.16
PV of expenditure (£ 000's)		-2634.68					
NPV (£ 000's)		75.17					
students on the course							
classroom			20	60	100	100	100
online			20	60	100	140	180
fees							
classroom			5	5.25	5.51	5.79	6.08
online course fees	0.5		2.5	2.62	2.76	2.89	3.04
IT department							
no of lecturers			4	4	4	4	4
no of admin staff			2	2	2	2	2
lecturers pay			60.00	66.00	72.60	79.86	87.85
admin pay			20.00	21.00	22.05	23.15	24.31
Pay of lecturers made redundant			40	40	40	40	40
no of lecturers made redundant			8	8	8	8	8

Original NPV as per Mohammed Mills

Time		0	1	2	3	4	5
Income							
total classroom fees (£ 000's)			100	300	500	500	500
online fees (£ 000's)			25	125	225	225	225
total income (£ 000's)		0	125	425	725	725	725
DF	0.1	1.000	0.909	0.826	0.751	0.683	0.621
PV		0	113.64	351.24	544.70	495.18	450.17
PV of income (£ 000's)		1954.93					
Expenditure							
cost of setting up IT dept (£ 000's)		-2200					
lecturers and admin pay (£ 000's)			-£280	-£306	-£335	-£366	-£400
savings from the loss of staff in other departments (£ 000's)			£320	£320	£320	£320	£320
lost earnings from students in axed departments (£ 000.s)			-£80	-£88	-£97	-£106	-£117
total expenditure (£ 000's)		-2200	-£40	-£74	-£112	-£152	-£197
DF	0.1	1.000	0.909	0.826	0.751	0.683	0.621
PV		-2200	-36.36	-61.16	-83.77	-103.64	-122.32
PV of expenditure (£ 000's)		-2607.26					
NPV (£ 000's)		-652.33					
students on the course							
classroom			20	60	100	100	100
online			10	50	90	90	90
fees							
classroom			5	5	5	5	5
online course fees			2.5	2.5	2.5	2.5	2.5
IT department							
no of lecturers			4	4	4	4	4
no of admin staff			2	2	2	2	2
lecturers pay			60	66	72.6	79.86	87.85
admin pay			20	21	22.05	23.15	24.31
Pay of lecturers made redundant			40	40	40	40	40
no of lecturers made redundant			8	8	8	8	8