UNISA university of south africa

Software Project Management

INF3708

Assignment 02: Due date 15 March 2017 Compulsory

ASSIGNMENT 02 - SEMESTER 1

ASSIGNMENT 02	
Due date	15 March 2017
Study material	Hughes & Cotterell: Chapters 2
Total marks	40 marks
If your assignment is late, please DO NOT PHONE OR E-MAIL asking for an extension but include a note in your assignment stating the reason for the late submission and we will decide whether or not it will be marked.	

UNIQUE NUMBER:
692785

SOLUTION FOR ASSIGNMENT 02 FOR INF3708 SEMESTER 1

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Question 1 **(8 Mark)**

In your own words explain what a project portfolio management is. What its functions are and discuss the three key aspects of project portfolio management. (8)

Answer

Project portfolio management provides an overview of all the projects that an organization is undertaking or is considering√. It helps prioritize the allocation of resources to projects and decide which new projects should be accepted and which existing ones should be dropped. √

It is a formal process where:

Project proposals are accesses for costs, risks, benefits, and contributions to objectives
Decisions are made conscientiously to authorize certain projects, retain some and dispose those with limited potential.
Scare resources are allocated effectively so as to insure that approved, priority projects get adequate funding and support.

The **functions** of project portfolio management include: (√√√) Give three marks for any of the three functions

- Identifying which project proposals are worth implementation

- Assessing the amount of risk of failure that a potential project has
- Deciding how to share limited resources, including staff time and finance, between projects.
- Being aware of the dependencies between projects, especially where several projects need to be completed for an organization to reap benefits.
- Ensure that projects do not duplicate work
- Ensuring that necessary developments have not been inadvertently been missed.

The three key aspects of project portfolio management are:

Project portfolio definition ✓

Project portfolio management✓

Project portfolio optimization✓

Question 2 **(32 Mark)**

The cash flows of Projects 1, 2 and 3 are given in the table below (in ZAR, South African rand, R):

Year	Project 1	Project 2	Project 3
0	-110,000	-450,000	-300 000
1	10,000	50,000	22,000
2	5,000	50,000	30,000
3	20,000	100,000	4,000
4	15,000	120,000	14,000
5	16,000	10,000	130,000
6	55,000	135,000	122,000

Table of cash flows for Project 1, 2 and 3

Use this information to calculate the **Net Profit**, the **Return on Investment** (ROI), the **payback period** and the **Net Present Value** at 12% for **each** of these projects. Then answer Questions 1 – 6.

Q2.1. Calculate the Net Profit for each project. **(6 marks)**

Project1:

Answer

Net profit is the difference between the total costs and the total income over the life of the project.
10 000 + 5 000 + 20 000 + 15 000 + 16 000 + 55 000 = 121000
121000 - 110 000 ✓
= **R11 000** ✓

Project 2:

Answer

Net profit is the difference between the total costs and the total income over the life of the project.

50 000 + 50 000 + 100 000 + 120 000 + 10 000 + 135 000 = 465 000
465 000 - 450 000 ✓
= **R15 000** ✓

Project 3:

Answer

22 000 + 30 000 + 4000 + 14 000 + 130 000 + 122, 000 = 322 000
322 000 – 300 000 ✓
= **22 000** ✓

Additional information about net profit:

Disadvantage as method for comparing projects – takes no account of timing of cash flows

Advantage as method for comparing projects – simple to calculate

Q2.2 Based on your calculation of the Net Profit, which project select and why? (1 mark)

Answer:

Project 3 would be selected because it has the highest Netprofit of R22 000 compare with Project 1 and ✓

Q2.3 Calculate the Return on Investment for each project. (6 marks)

Project 1:

Answer

Return on Investment (ROI), also called Accounting Rate of Return (ARR), provides a way of comparing the net profitability to the investment required.

ROI = average annual profit x 100
total investment

= 11 000/6 x 100
110 000

✓

= 1833 x 100
110 000

= 1.66% ✓

Project 2:

Answer

ROI = average annual profit x 100
total investment

= 15000/6 x 100
450 000

✓

= 2500 x 100
450 000

= **0.55%** ✓

Project 3:

Answer

ROI = average annual profit x 100
total investment

= 22 000/6 x 100
300 000
✓

= 3666 x 100
300 000

= **1.22%** ✓

Q2.4 Based on your calculation of the individual Return on Investment (ROI) of each project in question 2 above, which project would you select to develop? (1 mark)

Answer:

Based on the calculation of ROI, Project 1 would be selected because it has the highest return on investment on 1.66% ✓

Q.2.5 Calculate the Payback Period for each project. (6 marks)

Payback is the time taken to break even or pay back the initial investment

Project 1:

Answer =

Year	Project 1	Calculations for pay back period
0	-R110 000	- R110 000
1	R10 000	(- R110 000) + 10 000 = - 100 000
2	R5 000	(-100 000) + 5 000 = - 95 000
3	R20 000	(-95 000) + 20 000 = - 75 000
4	R15 000	(- 75 000) + 15 000 = - 60 000
5	R16 000	(- 60 000) + 16 000 = - 44 000
6	**R55 000**	**(- 44 000) + 55 000 = 11 000**

Project 1: (5 + (44 000/55 000) = 5.8year)
Or (6- (11 000/55 000) = 5.8year) ✓✓ (Please give one mark for the actual answer and one for showing how he/she got the answer)

Project 2:

Answer =

Payback is the time taken to break even or pay back the initial investment

Year	Project 1	Calculations for paid back period
0	-R450 000	- R450 000
1	R50 000	(- R450 000) + 50 000 = - 400 000
2	R50 000	(-400 000) + 50 000 = - 350 000
3	R100 000	(-350 000) + 100 000 = -250 000
4	R120 000	(-250 000) + 120 000 = -130 000

5	R10 000	(-130 000) + 10 000 = -120 000
6	**R135 000**	**(-120 000) + 135 000 = 15 000**

Project 2: (5 + (120 000 /135 000) = 5.88 year or 5.9 year
Or (6 – (15 000/135 000) = 5.88 year or 5.9 years √√ (Please give one mark for the actual answer and one for showing how he/she got the answer)

Project 3:

Year	Project 1	Calculations for paid back period
0	-R300 000	- R300 000
1	R22 000	(- R300 000) + 22 000 = - 278 000
2	R30 000	(-278 000) + 30 000 = - 248 000
3	R4 000	(-248 000) + 4 000 = -244 000
4	R14 000	(-244 000) + 14 000 = -230 000
5	R130 000	(-230 000) + 130 000 = -100 000
6	**R122 000**	**(-100 000) + 122 000 = 22 000**

Project 3: (5 + (100 000/120 000) = 5.8 Years
Or (6 – (22 000/122 000) = 5.8 Year √√ (Please give one mark for the actual answer and one for showing how he/she got the answer)

Q2.6. Calculate the Net Present Value for each project. (12 marks)

Note: the *Table of NPV Discount Factors* is available in the prescribed text book.

Project 1:

Answer

√√√√ (Please give one mark for the correct NPV calculation and half a mark each for correct discounted cash flow for each year)

Year	Project 1	Discount Factor at 12%	Discounted cash flow (R)
0	-R110 000	1.00	-110 000
1	R10 000	0.8929	8929
2	R 5 000	0.7972	3986
3	R20 000	0.7118	14 236
4	R15 000	0.6355	9532.5
5	R16 000	0.5674	9078.4
6	R55 000	0.5066	27863
NPV			**-R36 375.1**

Project 2:

Answer

√√√√ (Please give one mark for the correct NPV calculation and half a mark for each correct discounted cash flow for each year)

Year	Project 2	Discount Factor at 12%	Discounted cash flow (R)
0	-R450 000	1.00	-450 000
1	R50 000	0.8929	44645

2	R50 000	0.7972	39860
3	R100 000	0.7118	71180
4	R120 000	0.6355	76260
5	R10 000	0.5674	5674
6	R135 000	0.5066	68391
NPV			**- R143990**

Project 3: agree

Answer

√√√√ (Please give one mark for the correct NPV calculation and half a mark each correct discounted cash flow for each year)

Year	**Project 2**	**Discount Factor at 12%**	**Discounted cash flow (R)**
0	-R300 000	1.00	-300 000
1	R22 000	0.8929	19 643.8
2	R30 000	0.7972	23 916
3	R4 000	0.7118	2847.2
4	R14 000	0.6355	8897
5	R130 000	0.5674	73 762
6	R122 000	0.5066	61 805.2
NPV			**- R10 9128.8**