Case study 5

Post-graduate Diploma in Business Engineering at the FVL in Berlin/Germany

The Federation of Polytechnics for Distance Education (FVL: Fachhochschulfernstudien Verbund der Länder) is mainly based in the new states ('neue Länder') of the Federal Republic of Germany. It was constituted in 1994 at the initiative of the ministries of education of Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Thüringen and the Senate of Berlin. At the moment 19 higher education institutions of the six states participate in the FVL whose central agency is located in Berlin (Fernstudienagentur der FVL). Though predominantly operating in former East Germany, the FVL branches out to co-operate with partners in the old states ('alten Länder'[1]) like the Institut für Verbundstudien (IV in Hagen) and the Zenstralstelle für Fernstudien an Fachhochschulen (ZFH in Koblenz).

The objective of the FVL is to promote distance education in the participating states by developing courses in collaboration with the participating polytechnics. The organisational structure of the FVL consists of an administrative council, several professional councils and the agency.

The administrative council consists of representatives of the different polytechnics recruited from the professorial staff. It involves representatives of the federal ministry of technology and research (BMBF) as well as the research institute for distance education (DIFF). Its role is to plan projects, allocate funds and guarantee the equivalence of distance courses with the corresponding on-campus courses.

The professional councils (composed of academics of the participating institutions) are responsible for the courses. They have to set the curriculum for their course, decide about the selection of authors, the examination requirements and procedures and finally the evaluation of the courses.

The agency, located in Berlin and attached to the 'Fachhochschule für Technik und Wirtschaft' (i.e. Polytechnic for Technology and Economics), serves as an organisational interface between the member polytechnics. It combines the role of initiating new courses with responsibilities covering editorial issues as well as the production and distribution of materials. It also has the remit of facilitating the future use of multimedia.

[1]The expression 'alte und neue Länder' (old and new states) refers to the states being part of the Federal Republic of Germany before unification and after.

Business Engineering: description of the programme

The case study is about the Postgraduate Diploma in Business Engineering at the FVL, a five-semester programme for part-time students. The programme is very transparent in its attribution of student learning hours and contact hours. It combines a high percentage of face-to-face contact (25%) with print inputs for self-study (75%). The self-study time per week is designed to be 15 hours of self-study for 24 weeks per semester over five semesters (i.e. 360 hours per semester). In addition we have 96 hours of face-to-face teaching per semester.

Seminars are arranged every two to three weeks on a Saturday and include a one-week block seminar per semester. Up to now the teaching material is print based but inroads are planned into other media including videocassettes, CD-ROM and Internet. Teaching of the practical elements of the curriculum is concentrated in the seminars which are held at various polytechnics which provide the necessary laboratory facilities and computing facilities. The Internet is used to facilitate contact between students, between students and teachers, and between students and the administration. (The web site of the main agency in Berlin is www.fvl-agentur.de)

Table CS 5.1: overview over the course programme

Semester	Content	Hours of self study	Hours of seminar
1. semester	Business studies	78	12
	Accountancy	71	18
	Business informatics	140	48
	Economics	71	18
		Subtotal 360	Subtotal 96
2. semester	Business studies Accountancy	139	38
	Economics	71	18
	Business law	71	18
		79	22
		Subtotal 360	Subtotal 96
3. semester	Business law	62	14
	Management	138	36
	(area of specialisation[a])	160	46
		Subtotal 360	Subtotal 96
4. semester	Management	88	20
	(area of specialisation)	272	76
		Subtotal 360	Subtotal 96
5. semester	Dissertation / Exam		

Source: FVL; Notes: a: areas of specialisation include: marketing, production management, logistics, environmental management.

The programme requires in total 4 x 360 = 1 440 hours of self-study based on the study guides covering the four regular semesters. Then comes the examination semester where the student is studying completely on his/her own. For this semester we may add to the 1 440 student learning hours another 360 hours for the dissertation and the exam preparations. In addition we have 4x 96 = 384 hours of seminars. Adding all this together we have a course related study time of 2 184 SLH.

Resource media: inputs and costs

Until now the media input of the programme has consisted entirely of printed material. It comprises 16 study guides per semester each of about 50 pages. The development costs of each guide was estimated to be £3 040 each. The study guides are revised and replaced on a rolling basis. For the sake of simplicity we will assume here that six batches of students (i.e. 1 500) will use the material unchanged and after this it is replaced.

Table CS 5.2: development and production costs of print

Type inputs and type of costs	number and cost of inputs per semester	number and cost of inputs per course
Number of units	16	64
Fixed costs of development		
author related	24 320	97 280
design related	24 320	97 280
subtotal	48 640	194 560
Variable cost of production and distribution		
unit cost of study guide	1.52	1.50
variable cost per student	24.34	96.00
total variable cost (s = 1 500)	36 000	144 000
Total cost of print	84 640	338 560

Source: FVL; all costs in £'97

Student support: input and costs

Unlike many other distance-learning institutions which base student support mainly on tutor-marked assignments, FVL bases student support entirely on face-to-face tutorials. The tutorial time amounts to about 25% of the total study time and is seen as crucial to the high graduation rate of the course.

Table CS 5.3: cost of tuition

	per semester	per course
Unit cost of tutor per hour	19	19
Number of hours	96	384
Total costs of tutorials	1 824	7 296
Variable costs of tutorials per student (s = 30)	61	243

Source: FVL; all costs in £'97

From the figures in tables CS5.2 and CS5.3 we can see that the total variable costs per semester therefore amount to £25 + £61 = £86 per semester and per course £98 + £243 = 341.

Cost analysis

The cost analysis determines total direct costs, average costs and the various parameters of cost per student learning hours.

The total direct costs

The total (direct) course costs are the sum of the fixed and the variable costs:

Table CS 5.4: total direct costs

	per semester	per course
Fixed cost	48 640	194 560
variable cost of production	36 000	144 000
variable cost of tuition	1 824	7 296
subtotal	37 824	151 296
Total	86 464	345 856

Source: FVL; all costs in £'97

Average cost per student

We can now derive the average cost per student per semester or for the whole programme. We assume that during the lifetime of the course 1 500 students follow the study programme.

$$AC = \frac{TC}{s} = \frac{F}{s} + V \Rightarrow$$

For the semester we get:

$$AC = \frac{£\,48\,640}{1500} + £\,85 = £\,32 + £\,87 = £\,119$$

For the whole course we get:

$$AC = \frac{£\,194\,560}{1500} + £\,341 = £\,130 + £\,341 = £\,471$$

The number of student learning hours generated per semester was 360 +96 = 456 hours.

$$\text{cost/SLH(semester)} = \frac{£\,48\,640}{456} = £\,107$$

However the whole programme generated 2 184 hours of learning altogether:

$$\text{cost/SLH(programme)} = \frac{£\,194\,560}{2184} = £\,89$$

Using the conversion convention that 50 pages of print generate on average 10 hours of student learning and given that the course was based on print as the only pre-prepared teaching resource, we have for the semester as well as for the programme:

$$\text{cost/SLH(media)} = \text{cost/SLH(print)} = \frac{£\,48\,640}{160} = \frac{£\,194\,560}{640} = £\,304$$

Effectiveness

The programme prides itself on a high graduation rate. Most of the students enrolled are working, and therefore studying part-time. The high graduation rate might be explained by the direct relevance the course is perceived to have for their future career: engineers might want to move into managerial positions and feel that they need to understand the economic issues better; those in managerial positions might feel the need to understand the technical side of the process better because of their economic implications.