Examples and exercises:

Lecture 1

1. Write down five reasons why you should start your new business now; then write down five reasons why it is a bad time. Do the positives outweigh the negatives?
2. Analyse your business idea in terms of the features, advantages and benefits of the new product or service. How will it make life better for those who buy it?
3. Which of your personal goals will you satisfy by starting business? For example what is the relative importance of goals such as financial goals, desire for freedom, recognition, and realisation of potential technology, to you?
4. What are your present strengths and weaknesses in terms of experience, expertise, contacts, resources that will help you to launch your business?
5. Brainstorm: Write down ten ideas for a new business, no matter how crazy or impractical. Develop criteria for selection, such as benefits for the user, practicality, existing competition and fun to do. Score your ideas against your criteria. Select the best and develop five reasons why this is a killer idea, and why it would delight the customer.
6. Chose a ground-breaking product with which you have some familiarity, for example development of the ARM processor, or the introduction of the Apple iPOD, or the development of a drug. Write a short outline business plan that the pioneers might have written at the start of the project, but disguise the name. Swap with a colleague and critique each other's plan. Would you have funded their plan, without the benefit of hindsight?

Lecture 2

1. Find, on the web, the last published accounts for a large company like Apple or IBM. Calculate the ratios given in the lecture. Discuss your conclusions

2. *From University of Cambridge Computer Science Tripos 1995 Paper 9 Question 9*

Explain the difference between a profit and loss account and a cash-flow statement.
Under what circumstances would they show the same figures?
A small software company is offered a development contract, valued at £100,000 (excluding VAT), with 10% to be paid at the start of the contract, 30% invoiced at the first milestone (estimated after 3 months), 50% invoiced on completion, with 10% to be retained for 3 months after completion, as a guarantee against errors.
The company estimates that the project will require 6 months' work from each of two staff, whose annual salary costs are £36,000 and £24,000 respectively. Other overheads are approximately 120% of salary costs.
Draw up an outline monthly profit and loss account and cash-flow statement for the project, ignoring VAT and bank interest. Salary and overheads are charged to the project only while the programmers are actually working on it.

What is the eventual profit the company expects to make, if it undertakes the project, and how much working capital will the project require?

The effort in the project turns out to be underestimated, and the company delivers the first milestone 1 month late, and completes 2 months late compared with the original schedule, requiring both programmers to work for the extra 2 months. How has this affected the profitability and working capital requirement?

Lecture 3

1. Do an informal online patent search about your idea. If you don't yet have an idea you want to research use for example "Plastic bicycle".
2. Search for a free URL for your idea. Also trademark.
3. Go and visit a law court. Resolve not to be there as a litigant.

Lecture 4

1. Survey local incubators. What is the annual cost of a desk?
2. Recruitment: Interview practice. Practice recruitment and appraisal interviews on each other.
3. Which of the Belbin Worktypes (http://www.belbin.com) would you assess yourself as, and why?
4. Draw up job descriptions for your first five employees, and what their responsibilities will be. Write a brief pen-portrait of the ideal person for each role.

Lecture 5

1. Classic team demo.

Line the in groups of ten or so in a double line facing each other, with your right arms and index fingers stretched out. Lay a garden cane across the outstretched fingers. Tell the group that the task is to stay in contact with the cane, but lower it to the ground. The cane moves up, not down, as each person locally optimises their contact with the cane. It takes communication for each to move downwards.

2. Middle management muddle

Divide the class into three. One part is the workers, the second are their managers and the last the senior managers. The senior managers can only communicate with the workers, and the workers can only communicate with their manager. All communications must be in writing. Give the workers some materials for a task – sorting cards, for example. Give the senior managers the goal – sort the cards into ascending order. Half way through change the task – sort into descending order instead. Introduce some snags, for example some cards might be blank, Watch the chaos ensue.

3. Draw up a proposed organisation chart for your new business.
4. 1995 Paper 7 Question 10

The Wizzo project has two phases. Each phase consists of three main tasks:analysis, coding and test, which must be performed sequentially. Analysis forphase two can begin immediately on the completion of analysis for phase one,but coding for phase two must await satisfactory testing of the phase one code. Analysis is expected to take 3 weeks for phase one, and 4 weeks for phase two,while coding is expected to take 2 weeks for phase one and 3 weeks for phase two. Testing is expected to take 1 week for both phases.

(a) Draw the PERT and GANTT charts for the Wizzo project, and define the critical path. [5 marks]
(b) During testing of phase one, a serious bug is found resulting in 2 weeks of extra work being required in that phase. How will this affect the overall timescale and critical path of the project? [5 marks]
(c) An extra programmer is assigned to the project in week 6, potentially increasing code productivity by 50%, but first requiring 1 week's training by the project analyst. Will this allow the project to finish early, with or without the event described in (b) above? [5 marks]
(d) What other tasks would you expect to be under the control of the Wizzo project manager and be included in a typical software project? [5 marks]

Lecture 6

Lecture 7

1. Try taking the "*25 words, five messages and a question*" test:
   Often you have to pitch your idea in as little as 30 seconds. If you can summarise your pitch in 25 words or less, we will be able to sell it more effectively. Next, list the five most compelling messages that your full pitch will contain; bullet-points will do. Finally, imagine that you are about to make a presentation to a large auditorium full of potential investors or customers. What one question would you ask them to engage their minds, and make them realise that this was something both relevant to, and compelling for both them and their businesses?

2. Perform a FAB analysis for the USPs for your product or service. If you don't have a product or service pick one, like an autopilot for a bicycle. What do you need to do to maintain and enhance the perceived benefits?

3. Analyse half a dozen adverts, preferably for fashion goods or cosmetics. What are the real messages about the benefits of their products that the advertisers are trying to convey? Look at such things as the implied lifestyle and surroundings of the people in the advert. How do these messages differ from the surface message about the product features?
4. Go and find a friendly salesperson and spend a day on the road with them.
5. Draw up a prospects list of your first ten customers. What are their key resistance points?

Lecture 8

1. Pick a medium size company with whose products you are familiar. What are their growth prospects? What markets could they move into, and how much would it cost?
2. Find the accounts for a publicly quoted company, such as ARM Ltd. Do your own valuation, not looking at the share price, and then compare your result with the value of the company given by the share price. How do you explain the difference?

Exam questions

2010

1. A certain company decides to make a new educational computer.
   They agree terms with an OEM to supply units at a cost of £10/unit delivered, payable by LoC on shipment. They predict sales per quarter in units as follows:

Quarter	Q1	Q2	Q3	Q4
Sales (units)	200	2000	4000	8000

   The units are sold to a distributor as they are delivered at a price of £30 wholesale, for a target price of £49.99 retail.
   The company employs 5 staff at a monthly salary of £2000 each, and has overheads equivalent to salary. In addition there is a marketing spend of £10,000 per quarter. Draw up a quarterly profit and loss statement [5 marks]
2. Draw up a quarterly a cash flow projection and for this project, stating assumptions. How much working capital is required? [5 marks]
3. Draw up a balance sheet at the end of Q4 [5 marks]
4. Comment how the working capital might be funded [5 marks]

2009

1. Distinguish between *debt* and *equity* financing for a young company. [5 marks]

You have won a contract to write and supply some software and set up a company to do so. The contract is worth £100,000, with 30% payable at start, 20% at a milestone expected to be completed in month 3 after starting, 40% on delivery in expected in month 6 and 10% 1 month after delivery. You will need to employ two contract programmers at a rate of £2,500 each per month (plus overheads) for the duration of the contract.

2. Draw up an outline cash flow budget. What is the working capital requirement? [5 marks]

3. You raise investment of £15,000 in the company and arrange a bank loan facility up to another £15,000 (Ignore bank charges and loan interest for this question). You purchase £10,000 of capital equipment initially (computers etc). Draw up the balance sheet at the end of month 6. [5 marks]

4. The project unfortunately takes an additional two months before passing the milestone. What effect does this have on the working capital requirement?, What options do the Directors have if the bank refuses to extend the loan? [5 marks]

These topics are covered in Lecture 2 (Money and tools for its management) of the course

2008

Business Studies

a) Describe five criteria that an investor might use to evaluate a business. Which is the most important? [5 marks]

b) Distinguish between *marketing* and *selling.* [5 marks]

c) Distinguish between *quantitative* and *qualitative* market research [5 marks]

c) A PC manufacturer obtains the following results from test marketing PC systems:

System including	Price ex VAT	Number sold
19 inch monitor and software bundle	£299	1000
19 inch monitor, software bundle. and a printer	£399	750
22 inch monitor and software bundle	£499	400
22 inch monitor, printer but no additional software	£599	500

If the test market area represents 1% of the target population, what price point and how many sales should be expected for a system with a 22 inch monitor but with neither software nor printer? [5 marks]

Part (a) is covered in Lecture 1, and the rest of the question in lecture 7

2007

a) Give five criteria an investor might apply to a start-up proposal. [5 marks]

b) What are the differences between *debt* and *equity* finance ? [5 marks]

c)) A software start-up company is developing computer games software. They believe their game will have potential market of a million units selling at a retail price of £49.99. They have already raised £1M from Angel investors for 33% of the company, which has been mostly spent on development. They estimate they can complete development and become cash flow positive following initial marketing, but that this will cost a further £1M and take another year. They intend to raise this money by selling further equity. Price this issue [5 marks]

d) d) They receive a letter of intent from a publisher confirming their market estimation and offering 10% royalty on the retail price with £500K recoupable but non-refundable advance (where the publisher will take the first £500k of royalty earned to recoup the advance, but will not demand a refund if the game fails to sell). Should the company take this offer and how does this affect the proposed share offer? [5 marks]

Note: Topics covered in lecture 1 and 2 of the course.

2005

Explain the difference between *debt* and *equity* financing [5 marks]

What is meant by a *convertible debenture with coupon*, and how does this differ from *convertible preference shares?* [5 marks]

A certain software company has assets valued at £1M and is making a net profit of £100K on a turnover of £1M growing at 10% per annum. 1m shares, including 100K staff options have been issued. No dividends have been paid. The company wish to raise money so that they can expand faster, and are prepared to sell up to 300K new shares. Price the issue. [5 marks]

Why do venture capital funds prefer to invest in preference shares? [5 marks]

Topics covered in Lecture 2

2004
A software project has two phases, each with three tasks.
They are expected to take the following amount of effort:

Phase 1:
Analysis: 3 weeks
Code: 2 weeks
Test: 1 week
Phase 2:
Analysis: 1 week
Code: 2 weeks
Test: 3 weeks.

Within a phase a task cannot start until the previous task completes.
A task in Phase 2 cannot start until the corresponding task in phase 1 has completed.
Draw the PERT and Gant charts for the project. What is the minimum elapsed time? [5 marks]
Two staff are assigned to the project, and analyst and a programmer. The analyst also acts as test engineer. How long will the project take with this staffing? [5 marks]
The analyst is charged out at a fixed rate of £500/day and the programmer at £300/day, including overheads. How much should you quote for the project? [5 marks]
Explain how you would monitor such a project? How would you turn the result into a product? [5 Marks]
(Lecture 5)

2003
Describe three criteria a UK patent must exhibit? [3 marks].

What is the difference between the protection granted by a patent and that granted by copyright? Is this different in the UK from the USA? How might a computer program be protected? [5 marks]

Explain why giving away software might be a good thing. [6 marks]

A University Technology Transfer Office (TTO) is established to generate income from patenting and subsequently licensing intellectual property developed in a certain University. By drawing up a five

year outline cash flow or otherwise, indicate whether this is a viable activity. How else might a University benefit from the IPR it generates? [6 marks]

(Lectures 2 and 3)

2002

a. Distinguish between top-down, bottom-up and spiral (rapid prototype) development methodologies. Illustrate your answer with reference to an example of designing a building. [5 marks]
b. You are in charge of commissioning the design of a new building, such as the new Computer Laboratory building. Draw up a high-level GANTT chart for this task up to the letting of the building contract. [10 marks]
c. Discuss what monitoring and quality control procedures might apply to the design process. How will you get the agreement of the various stakeholders? [5 marks]

(Lecture 5)

2001

You are inspired to make your fortune by starting a distance learning enterprise to teach the world Computer Science, using multimedia lessons distributed over the Web.

Write notes for a business plan for the potential investors, under the following headings [5 marks per heading]:

a) The Market
b) The team required
c) Outline overall project plan
d) Business model, with a rough estimation of capital expenditure and profitability

(Mostly lecture 1)

2000

a) What are the differences between *profit and loss* and *cash flow* statements? [5 marks]

b) What are the differences between *debt* and *equity* finance ? [5 marks]

c) What is an *option* and how might it be valued? [5 marks]

d) Comment on the current prices of high-tech stocks. [5 marks]

(Lectures 1, 2 and 8)