CHALMERS

Department of Technology Management and Economics, Operations Management

Exam

Anonymous Code: _____

COURSE NAME	**Manufacturing Strategy**
PROGRAM	**Master Program in Production Engineering/Product Development**
COURSE CODE	**TEK195**
EXAMINOR	**Mats Winroth**
DATE AND TIME	**Wednesday May 28. 2012 08.30-12.30**
NUMBER OF QUESTIONS	**5, maximum 10p each**
ALLOWED AID	**Dictionaries**
TEACHER IN CHARGE Can be reached on phone Visits the exam at	**Mats Winroth** **031-772 1217** **Around 09.30 and 11.30**
SOLUTIONS AND RETURN OF EXAMS	Solutions (where possible to generalize) will be uploaded on PingPong the next working day. Reviewing of the exam takes place at the division of Operations management, room 3316, Monday Aug 25. at 12-13 and Monday Sep 08. at 12-13. The request for reviewing shall be in writing and must be delivered to the division no later than 2 weeks after the second opportunity for reviewing. After this the possibility for reviewing ends. Only obvious errors, such as errors in the summing of the result will be corrected later. When the student choose to bring the exam home all possibilities for correction of the result ends.
GRADING	Points will be added to the project with the following grades based on total number of points: Grade 3: minimum 40 points Grade 4: minimum 60 points Grade 5: minimum 80 points Minimum 20 points are required from the exam

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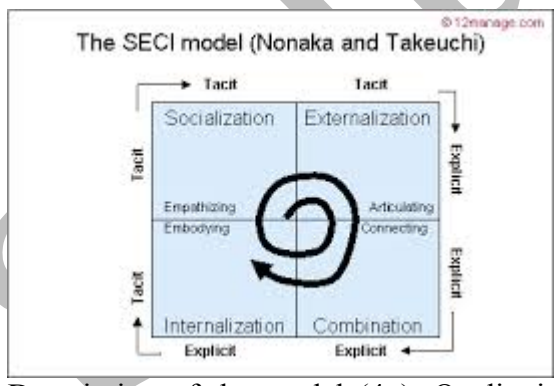
Question 1. Knowledge Management (2 pages)

Knowledge management is about actively working with the employees trying to get them to share the company vision and goals, gain sufficient knowledge on their specific work tasks, and to feel interest and pride in what they are doing. In this issue it may be interesting to create models on HOW knowledge can be shared. In this course we talked about one model, the so-called SECI-model (Nonaka, 1994).

a) Describe the SECI-model and how it is intended to illustrate this complex issue (6 p)
b) Knowledge and creativity are very much interlinked. Amabile (1998) described creativity linked to motivation. Which two types of motivations are there and what implications may they have on creativity? (4 p)

Correcting template

a)



Description of the model (4p). Qualitative judgment of the elaboration on its intended illustration of knowledge sharing (2p).

b. The maze is mainly linked to Motivation, which can be extrinsic (1p) or intrinsic (1p) (or perhaps a combination). Intrinsic motivation: People will be most creative when they feel motivated primarily by the interest, satisfaction, and challenge of the work itself and not by external pressures. Extrinsic motivation: Carrot or stick? Either you succeed with your experiments in finding a cure for this disease or you get fired! If you succeed in finding a cure for this disease you will get a raise!
Qualitative judgment of the reasoning on implications on creativity (2p).

Question 2. Operations Strategy in general (max 2 pages)

During the course, and in particular seminar 4, you studied the development of the Operations strategy field. Related to the readings (e.g. Slack and Lewis, 2011, Anderson et al., 1989, Dangayach and Deshmukh, 2001, Brown and Blackmon, 2005) describe how the field has developed.
To help organize your arguments: What defines Operations strategy? What progress has been made since the seminal work by Skinner in 1969? What trends can be seen? What directions will the field take in the future? (10 p)

Correcting template

Qualitative judgment of the answers. 4 points for explaining basic reasoning, e.g. definition, RBV, green manufacturing. 5-8 points for providing some sort of analytical thought. 9-10 points for bringing up different aspects and look at them critically.

Question 3.

Choosing the appropriate capacity strategy is crucial to achieving sustainable operations. There are two major capacity strategies, which provide different consequences in terms of competitive advantages and drawbacks. They also lead to different implications internally for the own organization.

1. Which are these two strategies? Describe them briefly. (5p)
2. Which are the main consequences of these two strategies related to competitive priorities and internal factors? (5p)

Correcting template

1. Lead and lag strategy. Lead: capacity increase is done in advance of the actual need. Lag: capacity is increased only when the entire increase can be utilized.
2. Lead: Overcapacity costs! Not 100% utilization. Better deliverability, better quality, ability to take new orders quickly, more satisfied customers (if they don't have to pay too much!), less stress on personnel. Lag: Full utilization=>lower cost! Negative in all aspects above.

Question 4. Case – Aluminum Inc. (max 2 pages)

Aluinc is a company with around 140 employees focusing on further treatment of aluminum profiles. Their core competences are bending, machining, and welding. Their production is almost entirely, more than 90 %, focused on being a competence partner to the BIG extruding company, Global Aluminum Company (Glalco), in the same small town. Clalco is now the world's largest aluminum extruder employing more than 15.000 people worldwide. Aluinc. does not buy the profiles, but Glalco sends them down to Aluinc for processing and then back to Glalco for surface treatment, packaging, and dispatch to customers. Since some of the final customers come from the automotive industry, Aluinc has a well-developed quality management system according to TS 16949 (additional requirements on top of ISO 9001). However, they still have a lot more to improve before their operations are really world class. Their quality yield, mainly due to limitations in the process technology, is about 88%. Delivery precision is high, but often managed by unplanned overtime. Due to this rather unsatisfactory work situation, short-term sick leave is about 5%, but long-term leave has increased and is now about 8%, which is considered to be too high and subject to management actions. One issue that the management team has identified is the awareness among operators about how they can improve the output and contribute to customer satisfaction. This is now varying considerably among different operators mainly due to lack of communication from management and the operators' previous experience and education.

Since Aluinc is a preferred supplier to Glalco, Aluinc is not permitted to do similar tasks for Glalco's worst competitor, LocAl, or to do tasks that would directly compete with Glalco. This is considered to be a problem, since Aluinc feels that they are in a risky position if Glalco suddenly would turn to another supplier or get into difficulties. The present situation is also obstructing further growth of Aluinc, since volumes very much depend on the need from Glalco. Aluinc

recently got a new CEO, who wants to get an investigation done around the possible consequences of a number of future scenarios for the company:

1) Continue as today, being totally dependent on Glalco
2) Go into other metal machining, thus NOT competing with Glalco
3) Develop a final product of their own in order to be more flexible on the market
4) Say goodbye to Glalco and turn to LocAl and other aluminum extruders that don't demand being sole customer

Your **task** is to develop a report to the new CEO about the consequences, negative and positive, these identified possible changes would have. Make a strategic analysis using any framework from the course and suggest the "best" alternative keeping in mind that the corporate goal is to grow by at least 10% a year. (10p)

Correcting template

Qualitative judgment of the answer.

Question 5. Case Kinnarps AB (max 4 pages)

Kinnarps AB, situated in the small village of Kinnarp, not far from Falköping and Ulricehamn, was founded in 1942 by Jarl and Evy Andersson. It is now a major player on office furniture in the upper segment.

Some historical marks:

40th
Evy & Jarl Andersson launched the Kinnarps business in 1942 with two employees. Initially, furniture was made to order, mainly for architects. In 1943, Kinnarps started to deliver tambour cabinets to the Swedish Government and three years later the first contract with the Swedish Government was signed.

50th
Kinnarps invested in its first complete range of office furniture and produced its first catalogue in 1952. Completion of the new factory gave Kinnarps the space it needed to expand its production of chairs. In 1959 Kinnarps started to deliver the furniture with its own furniture van and to assemble the furniture at the customer's office.

60th
In the beginning of the 60s 34 people worked for Kinnarps and the turnover broke the 2 million SEK mark. In 1968 Kinnarps opened a showroom in Stockholm. During the 60s the product assortment increased and Kinnarps started with order-directed production.

70th
Henry Jarlsson, the oldest son of Kinnarps' founders, took up the post as CEO in 1973. Kinnarps was established on the export market with launch in London in 1974. In 1977 Kinnarps bought a briquette press for wood waste. The briquettes reduced the use of heating oil and made use of the inevitable wood waste from the factory

80th

In the mid-1980s Kinnarps decided to invest in a new and comprehensive range of furniture. Soft seating and conference-room furniture were incorporated into Kinnarps' standard sortiment. Kinnarps also purchased the supplier Granstrands and invested in a new factory in Skillingaryd.

90th
Kinnarps becomes the first furniture manufacturer in Sweden to receive quality certification under ISO 9001 in 1993. Kinnarps' eco management system was certified under ISO 14001 in 1997. Kinnarps also decided to join EMAS, the EU initiative on environmental management the same year. In the 90s, the teamwork with the supplier Reiners was developed and in the autumn of 1999 Reiners became a part of the Kinnarps group.

00th
Kinnarps won two awards in the beginning of the new century – "the Balanced Scorecard Hall of Fame Award" and "the Competence Company of the year in Sweden". Kinnarps was established in several new markets and acquired the design furniture companies Klaessons, Materia and Skandiform. In 2007 Kinnarps had the biggest product launch ever in Kinnarps history when four new products series were launched

Today
The Kinnarps Group has about 2700 employees in Sweden and in the rest of Europe today. Kinnarps offers furniture for all types of workplaces, from open-plan offices, seating, executive offices and cellular groups, to conference, training and meeting environments, cafés and restaurants, receptions, breakout areas and quiet spaces. In short terms – Kinnarps provides interior workspace solutions for offices and public environments.

Production and Logistics

Some key points regarding how Kinnarps has organized its operations:

Responsibility for the whole chain

The majority of Kinnarps' products are manufactured from scratch, starting with the purchase of raw material and finishing in a final product, at one of the Kinnarps' manufacturing plants. Kinnarps has six factories, located at Kinnarp, Skillingaryd, Jönköping, Vinslöv and Tranås (2) in Sweden. These factories are among the most modern and efficient in Europe. Continuous improvement of the production processes is a key part of Kinnarps' strategy - not just to speed up production and thus shorten delivery lead times but also to improve the quality of the products even further.

Kinnarp is the home of the largest production facility. In addition to machine shops for wooden components, the furniture is also assembled and all furniture delivered by Kinnarps trucks loads together from here. The manufacturing process involves processing wood products, such as fibreboard, solid wood and veneer. This facility has a production area of 120,000 m².

The factory at Skillingaryd manufactures all the furniture that incorporates padded upholstery. Here the polyurethane production is also located, making the padding material Kinnarps uses in chairs, sofas and armchairs. The manufacturing process includes cutting, stitching, joinery, surface treatment, upholstery and assembly. The facility has a production area of 26,500 m². The

factory at Jönköping manufactures all mechanisms for Kinnarps' office chairs and elevator tables and has a production area of 17,000 m². The production process involves manufacturing work pieces, including punching, pressing, bending, joining, manual and robot welding and degreasing, lacquering and assembly.

Kinnarps has also two factories in Germany: in Minden and Worms. Here it produces chairs, storage, cabinets and tables. These two factories are working according to a Lean Production philosophy. In simple words it means 'more value for less work'. The winners are the customers, because the production process is constantly improved and wastage of time and resources are eliminated.

The production facilities for Kinnarps independent trademarks, Skandiform and Materia are located in Vinslöv and Tranås. These production factories combine individual craftsmanship with new machines.

Kinnarps has also developed its own advanced logistics system, one that is characterised by efficiency and environmental thinking. The goods are shipped in the company's own environmentally adapted trucks that run on eco-diesel and tyres without aromatic oils. They load the trucks to an average 91% capacity and always try to carry goods from our subcontractors on the return journey. Kinnarps' haulage business comprises of more than 60 heavy trucks and nearly 175 swap-bodies. In 2006 Kinnarps started using railway transport to improve the efficiency and reduce the environmental Impact. Today Kinnarps uses the railway network wherever possible. For example furniture is transported by rail between Sweden and Continental Europe (Ghent).

Case Task

a) Identify and develop the operations strategy of Kinnarps AB based on the information above. Motivate your choice thoroughly. You are allowed to make own assumptions, as long as you state which they are and why you make them. The OS matrix should be used, but other tools may also contribute to the answer. (5 p)
b) Which operational challenges do you expect them to have in the future? (5 p)

Correcting template

Qualitative judgment of the answer. Well-motivated and developed answers are required to get full points!