GSOE9810

PRODUCT AND PROCESS QUALITY IN ENGINEERING

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COURSE OUTLINE

1.   CONTACT DETAILS:

Academic in charge: Erik van Voorthuysen
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Teaching Staff: Erik van Voorthuysen
Ron Chan, ting.chan@unsw.edu.au
Sandra Popovic, online support, email address to be advised

Consultation concerning this course is available immediately after the classes. Direct consultation or phone is preferred.

Face to face classes will be run by myself and Ron Chan and web-based support will be provided by Sandra Popovic.

2.   COURSE DETAILS

Lecture Times and Locations

> **Thursday 1800-2100**
> Leighton Hall (K-G19-G01) for weeks 1-5 incl.
> Mechanical Engineering G03 (K-J17-G03) for weeks 6-13 incl.

Units of credit

This is a 6 unit-of-credit (UoC) course, and involves 3 hours per week (h/w) of face-to-face contact.

approximately 25 hours per semester for each UoC, including class contact hours,

For a standard 24 UoC in the session, t 17)-3(d)6(93 TiL57004C Do Q g)PC1(o)4 1 claw91.9 T1 c

This means that you should aim to spend not less than about 10 h/w on this course, i.e. an additional 7 h/w of your own time. This should be spent in making sure that you understand the lecture material, completing the set assignments, further reading

Graduate attributes

https://my.unsw.edu.au/student/atoz/GraduateAttributes.html and are stated as:

Scholars who are:
1. understanding of their discipline in its interdisciplinary context
2. capable of independent and collaborative enquiry
3. rigorous in their analysis, critique, and reflection
4. able to apply their knowled2 12 Tf1 0 0 1 174.29 689.86 Tmtiquo9a

Therefore, a wide variety of concepts and tools of analysis will be covered and you will be interacting with other students in the lectures and practica, either online or face-to-face, sometimes in teams or individually. You become more engaged in the

The assessments are based to allow you to obtain an understanding of the material being taught and will allow you to apply the concepts learnt in the course.

In order to achieve a Satisfactory performance in this course, you need to both achieve a composite mark of **at least 50** and a satisfactory level of performance in all assessments.

The dates for the assignments will be communicated to you in class and provided on Blackboard or Moodle as the course progresses.

Examination

There will be a two-hour Final at the end of the session. The Final Exam will cover all material covered for the whole session.

You will need to provide your own calculator, of a make and model approved by UNSW, for the examination. The list of approved calculators is shown at
https://student.unsw.edu.au/exam-approved-calculators-and-computers

It is your responsibility to ensure that your calculator is of an approved make and

Engineering Student Centre prior to the examination. Calculators not bearing an

Special Consideration and Supplementary Assessment

For details of applying for special consideration and conditions for the award of supplementary assessment, see *Administrative Matters*, available from the School website.

Assignments

The assignments will be posted on Blackboard or Moodle and an announcement made about due date for the assignments. Completed assignments will be handed in hard copy by the end of the week the assignment is due. The assignments support the learning outcomes by incorporating an appropriate mix of activities such as issue analysis, fact based data analysis that support the design of appropriate solutions and strategies. The assignments also support collaborative team work and integration of different ideas and components into a overall coherent quality management strategy.

The School guidelines recommend that late submissions incur a penalty of 10% of the total marks awarded for each calendar day the assignment is late. For example, if you received a mark of 40 out of 50 for an assignment that you handed in 2 days late you would receive a penalty of 8 marks and your mark would be reduced to 32. If the same assignment were handed in 4 days late the mark would be reduced to 24. An extension may only be granted in exceptional circumstances. Where an assessment task is worth less than 20% of the total course mark and you have a compelling reason for being unable to submit your work on time, you must seek approval for an extension from the course convenor before the due date. Special consideration for

assessment tasks of 20% or greater must be processed through:
https://student.unsw.edu.au/special-consideration

Analysis and Evaluation of assignments by integrating knowledge gathered in lectures, practica and textbook.

Sentences in clear and plain English   this includes correct grammar, spelling and punctuation

Correct referencing in accordance with the prescribed citation and style guide

Appropriateness of analytical techniques used

penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in a honours thesis) even suspension from the university. The Student Misconduct Procedures are available here: http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Further information on School policy and procedures in the event of plagiarism is presented in a School handout, Administrative Matters for All Courses, available on the School website.

7.   COURSE SCHEDULE

TOPICS (Chapters from the Textbook)	Week(s)
1. Perspectives of Quality Engineering and Quality Theory **(1,2)**	1,2
2. Global supply chain quality, Quality standards and Strategic Quality Planning **(3,4)**	3,4
3. Voice of the Customer and Voice of the Market **(5,6)**	5
4. Quality in Product and Process Design and Quality Function Deployment **(7)**	6
5. Managing Supplier Quality in the Supply Chain, Failure Analysis **(9)**	7
6. The Tools of Quality and Statistical Process Control **(10,11)**	8,9
7. Statistical Process Control for Attributes **(12)**	10,11
8. Six-Sigma Management and Tools **(13)**	11
9. Implementation and Validation **(14, 15)**	12
10. Course revision and practica	13

Week	Discussion Questions	Problems	Case Studies

3	Chapter 1, Questions: 6, 11, 16, 17, 18 Chapter 2, Questions: 6, 16, 18 Chapter 3: Questions: 9, 15, 16, 17	-	Case 1.1: FedEx
4	Chapter 4, Questions: 10, 11, 12, 15, 18 Chapter 5, Questions: 2, 13, 15, 18	Chapter 4: Problems 1 to 4	Case 4.1: Ames Rubber Case 5.2: Chaparral Steel
5	Chapter 6, Questions: 3, 5, 7, 10,11, 19, 21	Chapter 6: Problems 1, 3, 5, 6	
6	Chapter 7, Questions: 6, 9, 11, 16, 17	Chapter 7: Problems 1 to 6	Case 7.1: Ford Taurus
8,9	Chapter 9, Questions: 9, 10, 11, 16, 18, 20	Chapter 9: Problems 1, 3, 5, 7, 9, 14, 16, 20	Case 9.2: Honeywell
9	Chapter 10, Questions: 17, 18, 20	Chapter 10: Problems 13, 14, 17, 18, 20, 22, 23, 26	-
10	Chapter 11, Questions: 4, 9	Chapter 11: Problems 1, 2, 4, 5, 7, 8, 10, 13, 21, 22, 26	-
11	Chapter 12, Questions: 2, 7	Chapter 12: Problems 1, 3, 10, 14, 15, 16, 17, 20, 21, 22, 24, 27, 31	-
12	Chapter 13, Questions: 1, 5, 7, 8, 9, 10	Chapter 13: Problems 1, 5, 6, 9, 10, 12	Case 13.1: The Neiman-Marcus Cookie
13	Chapter 15, Questions: 2, 5, 6	-	

TABLE 1: PRACTICA EXERCISES

Please note that the some of the topics may run over the indicated period if there are questions and the discussions are long.

RELEVANT RESOURCES FOR STUDENTS ENROLLED IN THE COURSE

Prescribed textbook

The prescribed textbook for this course is:

Thomas, Foster, Managing Quality   Integrating the Supply Chain, Prentice Hall, 2007. ISBN: 0132239965.

Additional materials provided in Moodle

This course uses Moodle which provides a list of assignments, answers to the numerical questions, suggested answers to case studies and assignments and weekly discussion forum.

The discussion forum will be extensively used by Web lecturers of the course throughout the session. Each of you will be assigned to a group by Week 5.

Your Web lecturer has access to your team's discussions and will offer guidance when and where necessa

Engineering Student Centre prior to the examination. Calculators not bearing an Approved sticker will not be allowed into the quizzes.

11. ADMINISTRATIVE MATTERS

You are expected to have read and be familiar with