

Fakulteit Ingenieurswese, Bou-omgewing & IT
Faculty of Engineering, Built Environment & IT

**School of Engineering
Department of Chemical Engineering**

**Study Guide
Research Project CSC 411/421**

2017



**UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA**

Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

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A. ORGANISATIONAL COMPONENT

A1. GENERAL PREMISE AND EDUCATIONAL APPROACH

The general objective with these modules is to develop your skills in research, your understanding of research methods and your project management ability. You will need to comprehend a given research topic/problem and do the research required to complete the modules successfully. These modules will develop and test your ability to –

- identify and formulate the purpose of the research;
- analyse and evaluate literature;
- plan your research and the measurement of results (including the evaluation thereof);
- design and construct laboratory apparatus/test rig or computer program;
- conduct testing and data processing with interpretation;
- communicate the findings;
- complete the above within a given time frame and to a self-planned schedule.

Particular emphasis is put on independent and self-regulated work with an open door access to help in terms of research methods and information on relevant aspects in the field of study. Research is done on a scientific basis and assessment will place specific emphasis on the scientific basis followed in conducting and reporting the research

A2. LECTURERS, VENUES AND CONSULTING HOURS

A project topic is assigned to each student and a project supervisor is appointed. The supervisor will inform you on laboratory space allocated for your research, available research equipment, etc.

Student – Supervisor interaction

CSC411: Supervisor **Tel:**

It is mandatory that a weekly meeting be scheduled with your supervisor to report your progress and discuss your planned actions and any other aspects of concern. Absence from the weekly meeting will be deemed unprofessional conduct. A planned research schedule needs to be completed and submitted for approval within the first week after commencement of the module. This schedule must be updated and resubmitted when necessary.

CSC421: Supervisor: Prof PL. Crouse: Tel: 012 420 2856

A3. STUDY MATERIALS AND PURCHASES

A literature survey on your research topic is required that may cover textbooks for background purposes but must include publications from peer-reviewed journals. The guidelines used for reporting will be the Department's: "Guidelines for writing technical reports and papers". A publication on engineering experimentation will be useful in guiding you in research e.g. the textbook by M A Ray, "Engineering Experimentation: Ideas, techniques and presentation". published by McGraw-Hill in 1988; Also Douglas C Montgomery, "Design and Analysis of Experiments"

A4. LEARNING ACTIVITIES

Contact time and learning hours

The modules CSC 411 and CSC 421 carry ratings of 16 credits each, indicating that the student should spend approximately 160 effective hours per module to complete the research project successfully. The student's time table makes provision for 15 project periods per week for the module CSC 411. The student must make sure that he/she spends approximately 15 hours per week on the project during the first semester.

The modules are designed to be student-centered with assistance from the supervisor when required. The onus is on the student to make sure that he/she understands and knows what is necessary to complete the project on time and the steps required to do so. The mandatory weekly meeting with the supervisor will help in achieving it.

Module CSC 411 RESEARCH PROJECT 411

Students are required to indicate their choice of project from a list of available topics. A project will thereafter be assigned to each student. The student must make the necessary arrangements with the supervisor before or during the first project period concerning laboratory space allocation, project requirements, reporting, control, etc.

This module will normally (dependent on the specific project) include:

- project planning and programming;
- a literature survey;
- experiment and apparatus design plus erection/construction;
- experimental test work;
- processing of results; interpretation
- the final project report

The student needs to develop, complete and update a project planning and progress report. The report needs to be submitted to the supervisor for approval and control and will be used by the supervisor as an indication of the ability of the student to work independently. On completion of CSC 411 the student submits a COMPLETE PROJECT REPORT.

Refer to paragraph B5 for details about deadline dates.

Module CSC 421 RESEARCH PROJECT 421

In this module the final project report is revised and submitted for re-evaluation, together with a research proposal for further work. In addition, a scientific article (paper) on the work is written. The article must be completed in accordance with the guidelines mentioned in paragraph A3. The supervisor must be mentioned as co-author. It is recommended that the student submit the article in advance and arrange with the supervisor to make recommendations for improvement before final submission. The article is discussed and improved during group sessions and is subjected to peer evaluation. An oral presentation is developed for the conference style presentation of the paper. The article (paper) is then finally presented at an oral examination; demonstrating communication skills. A poster presentation is prepared and the poster is presented / defended during the Departmental Project presentation evening.

Refer to paragraph B8 for deadline dates.

A5. RULES OF ASSESSMENT

Module CSC 411 RESEARCHPROJECT 411

Pass requirements. In order to pass CSC 411 a student must

- obtain a final mark of at least 50%;
- obtain a subminimum of 50% for the investigation, experiments and data analysis (ELO 4), for independent learning ability (ELO 9) and for professional conduct throughout the investigation (ELO 10).
- successfully evacuate and clean his/her laboratory work area.

Calculation of the final mark. Only a final mark will be awarded. The breakdown of the final mark is indicated on the CSC 411 mark sheet shown in Appendix I. An external examiner will be appointed for each project to moderate the final mark. In order to do so, the external examiner will receive a copy of the final report and will have the opportunity to question the student at his/her project work space during an oral “examination” at the end of the semester.

Module CSC 421 RESEARCH PROJECT 421

A student is only allowed to register for module CSC 421 if a pass mark is obtained for CSC 411.

Pass requirements. In order to pass CSC 421 a student must:

- obtain a final mark of at least 50%;
- obtain a subminimum of 50% for the written article (ELO 6) (ELO 4)
- obtain at least 50% for the revised CSC411 report (ELO 6)

Calculation of the final mark. The total final mark is calculated as follows (Test ECSA outcomes): (ELO 4, 6, 8, 10)

Final Mark:

Semester mark: 40%

Examination mark: 60%

Semester Mark:

This is determined by multiplying the calculated Semester Mark with a Professional Conduct Deficiency Factor (PCDF) - see below.

Calculation of the semester mark. The revised Research Project 411 report and research proposal are assessed by the supervisor. This mark represents 20% of the semester mark. The other 80% of the semester mark is awarded for student participation, group work, performance in the written article and oral presentation, and for the oral presentation to the peer group. (See paragraph B7 and App III and IV).

Calculation of the examination mark. The examination mark is compiled as follows:

Written Article final submission: (50%) Subminimum of 50% required (ECSA ELO 4 and ELO 6)

Oral/Poster presentation: (50%) (See App VI)

Calculation of the written article mark. The written article is assessed by four examiners, using the mark sheet given in Appendix II.

Assessment of the oral presentation. The oral presentation is assessed by four examiners, using the mark sheet (App III).

Assessment of the poster. The poster is assessed by three examiners using the mark sheet Appendix VIII.

Professional Conduct Deficiency Factor (PCDF)

The PCDF is a multiplying factor ($0 \leq \text{PCDF} \leq 1$) used to calculate the student's semester mark [Semester Mark = PCDF x calculated mark]. (App IV)

The following factors will (typically) be taken into account to determine a student's PCDF

- attendance (typically minus 0,3 per event)
- punctuality (typically minus 0,2 per event)
- poor peer rating for group work (minus 0,2)
- plagiarism (minus 1,0) etc. etc.

Note 1: As in any module, plagiarism is considered to be a very serious offence which not only leads to automatic failure, but also to prosecution and possible expulsion.

Note 2: A PCDF will also be applied to the final CSC421 mark if necessary. The following will be taken into account: Exam punctuality, professional conduct during exam and Project Evening, presence and performance during poster presentation etc.

A6. GENERAL

A6.1 Laboratory work

At the beginning of the second project period, the student must report to the laboratory supervisor, depending on laboratory allocation. A deposit of R50 is payable for safety equipment to be issued to the student. The deposit will be refunded after completion of the project, handing back of equipment issued and successful evacuation and cleaning of the student's work area.

Students working in the laboratories shall at all times wear acid-proof laboratory coats and safety spectacles. Laboratory safety rules shall be adhered to. Special arrangements need to be made in the unlikely event that a student may be allowed to work after normal hours or over weekends. The use of any equipment, instrumentation, glassware, etc. needs to be approved by the laboratory supervisor before use. The student is responsible for keeping his/her work area clean and safe as well as for the cleaning of glassware and instrumentation.

A6.2 Log book

To assist in the project management of Research Project 411 every student must maintain a log book (electronically or as loose pages), in which weekly progress reports must be written (one report per week). The main purpose of the weekly report is to document progress made during that week and to highlight achievements and problems encountered.

Every weekly report must start on a new page in the log book under the heading Week No 1, 2, 3 etc. Even if no work was done during the week a project report for that week must be given and the reason for no or insignificant progress must be explained. The Project Supervisor must sign every weekly entry in the log book and is specifically instructed to add (every week) comments of his/her own, **especially if the student is not progressing satisfactorily.**

The supervisor must also log all cases of unprofessional conduct in the log book. These should be noted by the student and appeals should be directed in writing to the Head of Department.

The assembled log book is handed in with the final project report and it accompanies the final project report to the external examiner.

The detail requirements for a log book will differ with project type and supervisor requirements, but will probably contain the information indicated below.

**Department of Chemical Engineering
CSC 411 Research Project 411**

Log book

Student **Supervisor**

Topic

Week No **from 2017/...../..... to 2017/...../.....**

Progress during the week:

.....

Problems encountered:

.....

Objectives for next week:

.....

Student's signature:

Comments by Supervisor:

.....

.....

Supervisor's signature

A6.3 Poster

An important part of Research Project 421 is the preparation and presentation of a poster which will summarise the paper written for Research Project 421.

The student is encouraged to read widely about poster presentation and production. The following comments are by W G B Mandersloot, originally printed in Chemical Technology, October 2003.

“A poster is very much an illustrated extended summary that must fit into the available space. It does not have to contain every detail that would be covered in a report. The main criteria to be considered in poster preparation are:

- A well-constructed informative title not overbearingly large and wasting space.
- A descriptive problem or objective statement.
- Scope: a short, clear explanation of what the author has done about it. (Experimental details need to be given only if required by the audience. Photographs of the set-up are often too indistinct to be helpful.)
- The most salient results, in graphical format whenever possible and preferably in colour.
- The main conclusions arising from the results.
- Visual impact: what was achieved and what was novel in the project should stand out! Use graphs instead of tables whenever possible. Use dark coloured characters, not necessarily black, for text; this enables various text sections to stand out.
- Curtail text to the minimum and lay it out in short paragraphs and point lists. The very minimum size of text should be 32 points.
- Readability: both text and graphics should be legible from a distance of at least three metre. Use colour for different data sets and do not use a poster background that interferes in any way with text or graphs.
- Print a poster on thick white matt-gloss paper — at least 140 g/m². Do not laminate a poster with a glossy plastic layer as spotlights may produce annoying reflections that interfere with readability.

Guidelines for poster presentations are summarized in App VII. The marksheet that will be used for judging the posters appears in App. VIII.

B. STUDY COMPONENT

B1. MODULE OBJECTIVES, ARTICULATION AND LEARNING OUTCOMES

The objective of these modules is to familiarise you with research methods. Skills are developed in

- Completing a literature study (requiring the selection and evaluation of literature and information on a specific topic)
- The identification and formulation of the research objectives and the methods by which the research can be evaluated.
- The planning of the research and completion of an experimental design based on applying research methods.
- The execution of experimental work and testing on a scientific basis (with data processing) to derive information from data (by analysis and interpretation).
- Project Management
- The successful communication of your findings, orally and in writing.

Critical learning outcomes

The following ECSA exit-level outcomes are addressed in these modules, implying that the student will be capable of the outcomes by the conclusion of the modules. In **CSC411** ECSA outcomes ELO 4 (Investigations, experiments and data analysis), ELO 9 (Independent learning ability) and ELO 10 (Engineering Professionalism) are **critical outcomes** meaning that the student needs to achieve a suitable level of performance in each of these outcomes separately to pass the module, while ELO 6 (Professional and General Communication) is also assessed at developmental level. In **CSC421** ECSA outcomes ELO 4 (Investigations, experiments and data analysis), ELO 6 (Professional and Technical Communication), ELO 8 (Individual, team and multidisciplinary working) and ELO 10 (Engineering Professionalism) are **critical outcomes** meaning that the student needs to achieve a suitable level of performance in each of these outcomes separately to pass the module.

EXIT-LEVEL OUTCOMES FOR ENGINEERING BACHELOR'S DEGREES

(Adapted from ECSA Document No. E-02-PE Qualification Standard for Bachelor of Science in Engineering (BSc (Eng)/Bachelor of Engineering (BEng) degrees.

Required Outcomes:

The following exit level outcomes (ELO) are achieved.

ELO 4: Investigations, experiments and data analysis

The student is required to

- Conduct a literature search and critically evaluate material required to solve a given research problem
- Plan and conduct an investigation/ experiments to solve a given research problem;
- Perform necessary analyses;
- Select and use appropriate equipment or software;

- Analyse, interpret and derive information from data;
- Draw conclusions based on evidence;
- Communicate the purpose, process and outcomes in a technical report.

ELO 6: Professional and technical communication

The successful learner will be able to

- Communicate effectively, both orally and in writing, with lecturers and peers, using appropriate structure, style and graphical support;
- Apply methods of providing information for use by others involved in related topics (if applicable).

ELO 9: Independent learning ability

In order to successfully complete this module the student must demonstrate competence to

- Operate independently in ill-defined contexts
- Take responsibility for their own learning requirements
- Take initiative to solve the research problem
- Source and evaluate information
- Access, comprehend and apply knowledge acquired outside formal instruction
- Challenge or test assumptions

ELO 10: Engineering professionalism

The student is made aware of

- the need to act professionally and ethically and to exercise judgement and take responsibility within own limits of competence;

B2. MODULE STRUCTURE: CSC 411

The research topics are selected such that the learning outcomes can be achieved. The project may be:

- laboratory investigations on existing apparatus/processes;
- development of new apparatus, methods or processes;
- computer investigations with development of models or applied program development, with preferably verification against laboratory results or results from industry.

B3. GUIDELINES FOR USING THE STUDY THEME DESCRIPTIONS: CSC 411

The information given in the next sections of this study guide under the various study theme headings is intended to assist students in their learning, in order to acquire the required skills and achieve the learning outcomes effectively.

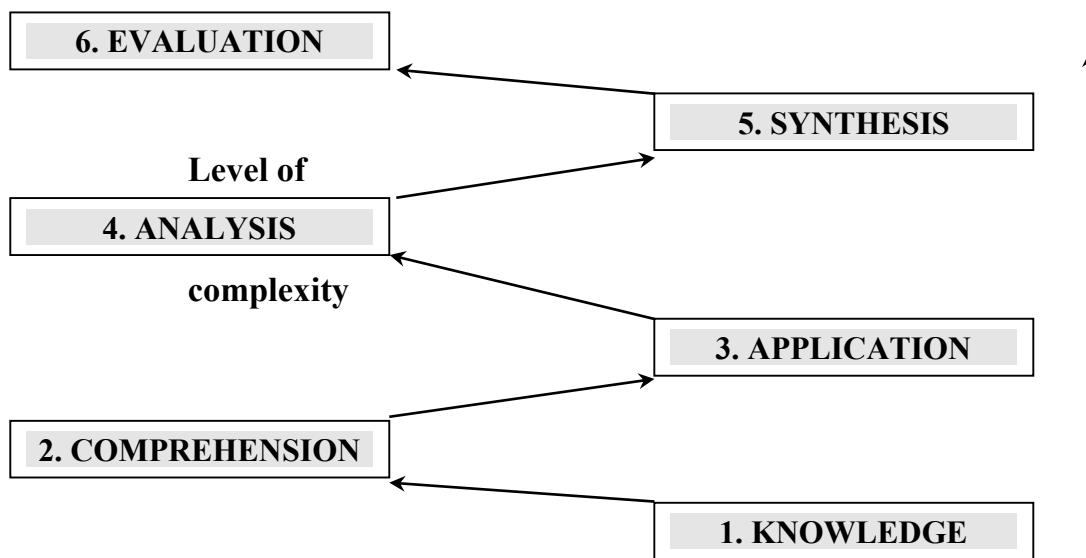
Learning outcomes of the study theme

The given learning outcomes for each study theme are essential to achieve the critical learning outcomes.

Criteria of assessment

The criteria of assessment are a list of specific skills to be mastered by the student in order to achieve the learning outcomes. During assessment students will be evaluated in terms of these criteria.

The statements used to define the criteria of assessment are classified in terms of a series of lower- to higher-order thinking skills (cognitive domains), in accordance with Bloom's *Taxonomy of Educational Objectives* (Bloom BS and Krathwohl DR, *Taxonomy of educational objectives. Handbook 1. Cognitive domain*, Addison-Wesley, 1984):



The characterisation of the cognitive domains is given in the table below.

Cognitive Domain	Definition	Typical Action Verbs
1. Knowledge	Remembering previously learned information.	Arrange, define, describe, identify, label, list, match, name, outline
2. Comprehension	Understanding the meaning of information.	Classify, discuss, estimate, explain, give example(s), identify, predict, report, review, select, summarise, interpret, "in your own words"
3. Application	Using the information appropriately in different situations	Apply, calculate, demonstrate, illustrate, interpret, modify, predict, prepare, produce, solve, use, manipulate, put into practice

4. Analysis	Breaking down the information into the component parts and seeing the relationships.	Analyse, appraise, calculate, compare, criticise, derive, differentiate, choose, distinguish, examine, subdivide, organise, deduce
5. Synthesis	Putting the component parts together to form new products and ideas.	Assemble, compose, construct, create, design, determine, develop, devise, formulate, propose, synthesise, plan, discuss, support
6. Evaluation	Making judgments of an idea, theory, opinion, etc., based on criteria.	Appraise, assess, compare, conclude, defend, determine, evaluate, judge, justify, optimise, predict, criticize

The list of criteria of assessment for a study theme and its accompanying envisaged learning outcomes should contain statements applicable to all six levels of thinking. Accordingly, students will be evaluated in terms of a mix of all six levels of thinking skills.

B4. STUDY THEME DESCRIPTIONS

Study Theme 1: Performing a literature search

At the end of this study theme you should be able to

- use paper-based and electronic databases to access abstracts of relevant papers
- formulate search strategies (keywords) to find relevant papers
- evaluate abstracts found in this manner with regard to their relevance to your research project

Study Theme 2: Hypothesis formulation and preliminary experimental planning

At the end of this study theme you should be able to

- evaluate the available literature data to identify the remaining questions on the research topic
- formulate a hypothesis (research problem) based on the literature data
- propose critical experiments which will serve to test your hypothesis and will yield data which should be useful to industry
- evaluate the feasibility of possible experimental approaches, given the constraints of time and equipment availability

Study Theme 3: Literature survey

At the end of this study theme you should be able to

- identify the main themes in those papers which are relevant to your research hypothesis
- evaluate critically the data and conclusions of scientific papers with regard to their relevance to your research hypothesis
- synthesise the available literature into a coherent argument on the current state of knowledge and the unresolved scientific issues
- present your argument in a well-written report, which fully describes the industrial and scientific background of your work
- organise your report into well-chosen sections
- use scientific language in a clear manner
- convey the essence of what other researchers have found, while scrupulously refraining from verbatim copying of any portion of their work
- use a consistent and complete method of handling references

Study Theme 4: Experimental planning

At the end of this study theme you should be able to

- formulate experiments which will serve to test your research hypothesis
- identify the required calibration tests which will need to be performed on the laboratory equipment which you will use, and describe how these tests will be performed
- evaluate the expected uncertainty in the experimental results, together with the sources of uncertainty
- propose ways in which the reliability of the experimental results can be evaluated (i.e. to answer the question of whether the equipment had performed as expected)
- propose ways in which the experimental data will be analysed (including statistical analysis), to provide information which can test your research hypothesis
- liaise with the departmental staff who are responsible for the various pieces of equipment, to ensure that your proposed experiments are feasible
- identify the safety issues which arise when performing the experiments, and the ways in which safety will be assured during the experiments

Study Theme 5: Experimentation, analysis and reporting

At the end of this study theme you should be able to

- perform the required experiments safely and reliably, with appropriate attention to equipment reliability, calibration, and repeat experiments (reproducibility)
- analyse the experimental results to yield data, reporting the uncertainty in the data (based on statistical analysis)
- interpret the data with regard to relevance for the original research hypothesis – stating whether the data agree with the stated hypothesis, or disprove it
- reformulate the hypothesis and experiments if necessary
- report your findings in a clearly written document, which restates (and revises) the literature survey, describes the experimental approach in sufficient detail to allow other researchers to repeat your experiments, reports the experimental data, reaches appropriate conclusions, and states clearly both the scientific and the industrial implications of what you find

- recommend future work in the report
- summarise the main findings of your project in a well-structured, logical and clearly presented oral presentation, using appropriate visual aids in making your presentation
- structure your presentation to convey your ideas clearly to the audience
- in your presentation, use language appropriately to state your ideas unambiguously
- develop your lines of argument logically in your presentation

B5. IMPORTANT DATES: CSC 411

General meeting for all CSC-students: Fr. 10 Feb. 2017 at 11:30. Venue: To be confirmed.

During this meeting general information will be provided.

Meeting with Supervisor: Mo. 6 Feb. 2017 at 11:30

Students meet with their Supervisors (in the Supervisor's office) for a preliminary discussion that must include allocation of laboratory/work space. If applicable, the student will discuss space requirements with the designated Laboratory staff - main campus and south campus.

First Semester Wrap-up: Mo. 29 May 2017 at 13:30

Every student hands the final Project Report and log book to his/her Supervisor and prepares his/her work space for the oral exam.

Discussion with external examiner: Fr. 23 June 2017 from 08:00

Evacuation / clean-up of workspace: This must be done before 30 June 2017.

B6. MODULE STRUCTURE: CSC 421

In spite of previous COMMUNICATION modules, the problem still exists that the reports/papers written by ChemEng students are not always very good; especially with respect to

- Editing
- logical flow of argument
- the ability to "write for the reader"

It is the objective of the Research Project 421 module to rectify these deficiencies, to develop the ability to make an oral presentation, using the MS Powerpoint presentation package and also by way of a poster presentation.

The objective is pursued by

- re-writing/editing the complete final project report and writing a research proposal for future work
- writing, judging (marking) and editing of a paper
- the oral presentation
- group work on the papers and oral presentations of other students
- preparing a poster presentation

B6.1 Project report / Research Proposal

The project report is marked by the Supervisor. The supervisor discusses the report with the student and the marked copy, together with the mark sheet (Appendix II) is handed to the student no later than Fr 21 July 2017 at 12:30. Corrections are made to the final report; in collaboration with and to the satisfaction of the Supervisor. This may require rewriting (sections of) the report.

The student also writes a research proposal for future work intended on the research topic. This proposal will demonstrate the student's knowledge and understanding. Guidelines for writing research proposals appear in App V.

The corrected project report and research proposal are handed to the Supervisor before 16:00 on Friday 28 July 2017. The Supervisor marks the corrected report (and research proposal) and this mark contributes 20% to the CSC 421 semester mark (See App. IV).

In all cases, electronic copies of the report, research proposal, article and poster should be submitted to the supervisor, together with the hardcopy printouts.

B6.2 Paper (max 2000 words)

B6.2.1 The class is divided into groups of five or six students each (groups 1 to 16). Every student writes a paper based on his/her project report. The project supervisor must be mentioned as co-author. The "audience" is the uninformed fellow-students in the fourth year class. The papers are discussed, criticized and changed in the group until the whole group is satisfied with all the papers.

B6.2.2 The class is divided into groups of 10 or 12 students (groups A to H) for formal evaluation and discussion of the papers. Every student evaluates his own paper and those of other students in the group — and the group discussion takes place thereafter.

After the discussion, the author has the opportunity to edit the paper before final submission for exam purposes.

B6.3 Presentations using MS PowerPoint

Every student must develop the ability to use MS POWERPOINT as presentation aid for an oral presentation. This will be done by a lecture and self-study. Access to the equipment will be arranged.

B6.4 Oral presentation (minimum 10 minutes, maximum 15 minutes)

B6.4.1 The class splits into the same groups as in paragraph B6.2.1 (groups 1 – 16). Every student prepares an oral presentation of 10-15 minutes to present the final paper. The presentations are discussed in the groups, criticised and changed until the whole group is satisfied with all the presentations. All the presentations must be done using MS POWERPOINT.

B6.4.2 Every student delivers his/her paper in the presence of the larger group (A – H) in EngII, 3-60 (MS POWERPOINT: 10-15 minutes). Discussion/question time of 5 minutes will be allowed. Marks are awarded by all the listeners.

B6.4.3 The presenter notes all the comments/criticisms resulting from the oral presentation and revises the presentation for the oral examination. The oral examination also takes place in Eng II, 3-60 (MS POWERPOINT: 10-15 min) in the presence of the Supervisor and at least three other examiners.

B6.5 Poster

Also refer back to paragraph A6.3 on page 8 of this guide and the poster guidelines in App. VI.

B6.5.1 The class splits into the same groups as in paragraph B6.2.1 (groups 1-16). Every student prepares a poster presentation of his/her paper. The poster presentations are discussed in the groups, criticised and changed until the whole group is satisfied with all the posters.

B6.5.2 Every student finalises his/her poster for examination at the official Research Project CSC421 examination and for presentation at the departmental project presentation evening.

B7. RULES: CSC 421

The following rules apply

- Attendance of the class meetings and discussion sessions is **compulsory**. (Note the important dates in paragraph B8).
- Absence or late submission will have serious consequences in terms of the PCDF as explained in paragraph A.5.
- The papers must be written in accordance with the requirements of the departmental “Guidelines for writing technical reports and papers”. Any standard word processing software can be used. Good quality printing on A4 size paper (one side only) is required. Note the importance of font size and spacing.
- The papers do not have covers and are stapled top left-hand corner. Note the number of copies required and remember to keep one copy for yourself.

The assessment for CSC 421 is done as indicated in section A5. The mark sheet for calculating the semester mark is shown in Appendix IV.

B8. IMPORTANT DATES: CSC 421

CSC 421 is not finalised in the first six weeks of the semester like the other second semester lectures, but continues until early in November. The ordinary classes are as indicated on the Departmental timetable (and announced on ClickUP).

Time slots for group discussions and feedback along with oral presentations will be announced in class and on ClickUP.

Submission dates

Discussion (with supervisor) of marked project reports Before Fr. 21 July 12:30

Revised project report and research proposal submitted to Supervisor Fr. 28 July 16:00

Paper (final) submission for Project 421 examination Tu. 10 Oct 10:30

Final oral presentation for examination submitted on Click-UP, together with preliminary poster We. 1 Nov 16:00

Final poster for examination submitted on click-up We. 15 Nov 10:00

Other submission dates (for e.g. group work, discussion and feedback) will be communicated in class and via ClickUP.

EXAMINATION

The final oral examination will take place on Mo. 6 - Mo. 13 November in Eng II, 3-60. The examination program will be announced in class and on ClickUP.

The completed preliminary poster (A4 size, four copies, of which one in colour) must be available for discussion with the oral examiners during the examination session. After the oral exam, the student will have the opportunity to improve and finalise the poster.

The final poster for exam assessment must be submitted (on ClickUp) before Wednesday 15 November 2017 at 10:00 for printing. Poster examination happens on Tuesday 21 November 2017.

DEPARTMENTAL POSTER PRESENTATION

The poster presentation will take place on Wednesday 22 November 2017 during the Afternoon/Evening. The public will be invited to attend.