Information TBMT14

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Status

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Document history

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TBMT14 Project course in biomedical engineering

This document contains important and complementary information for participants in the CDIO course *TBMT14 - Biomedical Engineering Project*. For the basic information about the course visit the course homepage at LISAM or the LiTH study guide. In order to implement and perform a well structured project the LIPS model is fully used in this course, but there are certain restrictions in the documents to be produced, see below. Note that the information contained herein is not comprehensive and course management reserves the right to modify and add new information.

Aim of the Course

The goal is that each project group, using the LIPS model, should be able to carry out good engineering and project work to meet customer requirements as outlined by the project description. The total amount of work should, however, not exceed the resources given available by the customer.

Information

Information regarding the project will be communicated via e-mail, written documents or in any other form after agreement between customer and project group.

Project Group

Each project group will be formed by 5-10 students. After forming the groups a project leader have to be appointed by each group. It is mainly the project leader’s responsibility to plan and manage the work of the group. The other members will be appointed one or more functions/responsibilities associated to:

* Documentation
* Design
* Implementation
* Testing
* Hardware
* Software
* Customer contact
* Quality
* Time planning
* Meetings

From the course perspective, it is important that every one of the project members get their own role and responsibilities.

Time planning

The work in the projects is not scheduled by the customer and therefore the groups will have to decide when and how to work. In this way the group can work as it suits them best. The students are expected to work approximately 240 hours, whereof 40 hours are intended for a theoretical individual part related to the project. This will give each group a total of X\*200 man-hours (X = number of students in group) to work with their projects over 15 weeks. The students themselves are responsible for planning their work and should think about even out the workload. During the planning it is important to take other courses, examination periods and activities into consideration. The comments from former students reveal that more time is spent in this course than in any other course; however every project hour should be accounted for and if you plan your work no other course will have to be neglected.

Project Meetings

It is recommended that project meetings, arranged by the groups, for all project members, should be held at least once a week. Project meetings should be documented.

Supervisor

Every group will be appointed a supervisor whose role is to be supportive and encouraging. The supervisor will however be passive and it is up to the group to contact the supervisor whenever they feel they need support. The supervisor will answer questions about the course in general and might help the group if any problems arise. The supervisor does not cost money (time) since the function is to support the project groups in a general way. However, the supervisor can be used as an expert to help with more specific problems and will then be treated as an expert, which will cost expert time.

In addition to the group meetings, the project leader and the supervisor should meet alone at least two times during the project to discuss potential issues (group dynamics, lack of prerequisites, etc) within the group.

Documents

An important task in the course and project management is to produce documents in a professional manner. Therefore the following documents, in addition to a group contract, should be produced in accordance to the LIPS-standard (when applicable):

* Specification of requirements
* Project plan including a system overview and activity list
* Time plan
* Specification of design
* Acceptance test plan
* Protocols from group meetings
* User manual
* Protocol with results from the acceptance test
* Final report with a reflection document
* Status reports (weekly report to the supervisor)
* Reports over used time and resources (weekly report to the supervisor)
* Theoretical assignment (Individually written; Max 1500 words)

There are no demands upon the layout of the documents, but general directions are that they should be traceable and all necessary information should be included. Hence the group can make their own layout. A recommendation, however, is to use the default design from the LIPS document templates to save valuable time and to make sure all information is included. It is important to be consistent when making all documents to ensure readability. Some documents are “living documents” which implies that they should be continuously updated when information changes during the project.

A demand for all documents is that they are inspected to ensure good quality and readability. In other words, the documents should be carefully read and commented by some one not participating in writing the document. One way of ensuring this is to use the method of “Fagan inspection”. Please observe that the actual content of documents that do not meet an acceptable standard will be difficult/impossible to review by the customer.

Assessment of documents

A general rule is that the documents should be of good quality, be clear, concise and consistent and produced in such a quality that they meet the standard for Swedish project standard specifications. The content must be consistent with the project plan. Specific guidelines for different documents will be provided later during the course.

Administration

Following administration routines are applied during the course:

* Requests and reports are normally attended to within 3 working days.
* Reasonable resources (e.g. expert help) will normally be given to the group within 3 working days.
* The project group is allowed up to 1 hours of help from an expert each week. Note that this resource cannot be accumulated.
* Reports regarding used time, used resources and status of the project should be sent to booth the supervisor and the customer every week (Mondays 17:00) for continuous follow-ups.
* Documents needed for the decision points should be at the customer’s disposal at latest three working days in advance. Final report should be submitted 1 week before the final presentation date (TG6).

Time and status reports will include information on total time spent for the group as well as for the individual and a graph of time spent per week, and the status of the project and exploited resources.

Documents forming the basis for the decision points (deliverables) should be submitted electronically via email three days before the due date of the decision. Late submission of relevant documents before the decision point will effect and change the decision date, which in turn delays the project. The continuous reporting should be sent via email.

Important dates

These dates are important in the course:

* Time and status reports are to be handed in every Monday.
* TG1 – Sep 10 – Course start, project directive
* Sep 24 – Submit project plan and time plan to supervisor.
* Oct 8 – Submit updated project plan and time plan to supervisor.
* Nov 26 – Submit individually written theoretical report to your supervisor.
* TG6 – Dec 17 – End of the project (Reflection document, oral presentation and demonstration)

Other important activities that you need to schedule with the customer:

* TG2 – Decision about start of execution phase (Specification of requirements)
* TG3 – Decision about start of implementation (Specification of design)
* Updated Specification of design
* TG4 – Acceptance test specification (Protocol for the acceptance test)
* TG5 – Project delivery (The final report with results from the acceptance test, user manual; about 1 week before TG6)

Other important activities that you need to schedule with your supervisor:

* Seminars covering the theoretical part of the course.

Feedback on documents

The customer feedback (approval/disapproval) will normally be given during the planned Tool Gate (TG) meetings, assuming that the document has been delivered in time (three working days in advance). Feedback from the supervisor/expert will normally be given within three working days after requested.

Resources

Conference rooms and lecture halls can be booked for the project groups by contacting the supervisor. External experts able to answer more specific questions will be appointed when requested. Further resource requests will be considered if reasonable.

Passing the course

To get a grade on the course it is demanded that all course activities are fulfilled and approved. During the course it is possible to renegotiate any project specifications, but only if special situations arise or project conditions change. It is however important that the customer’s demands and requirements are met with the resources at hand.

Further it is necessary that:

* All materiel is returned
* Keys are returned
* Works spaces are restored to its original state
* All members in the project group have participated actively in the project work
* The project is delivered on the stipulated date
* All documents are updated, consistent, handed in and approved.

When all requirements above have been met the results will be reported to LADOK.

Contact information

Up-to-date contact information can be found at the course home page.