Teachers’ Manual - Research Component

Research project 2021-202001050

This manual provides the introduction of the module, the tools, the detailed guidelines involved in each step for both Q1B and Q2B. The module coordinator will provide an additional “schedule” file that contains the detailed deadlines for each quartile 2 weeks before the module begins. Please read them together during the module.

Introduction of the module

The research project aims to teach students how to perform research and acquire skills in several phases of carrying out a research project. This includes defining among others the problem statement and motivation, the state of the art, methodology, planning, performing research, reflection, writing, (peer) reviewing, and presentation of the results. Each student needs to complete an individual research project under the supervision of a supervisor through this module. It consists of two parts: the research component (10 EC) and the reflection component (5 EC). This manual documents the detailed guidelines involved in different phases of the research component.

The research component is organized as a conference, along the lines of call for papers, ending up in a presentation at the [Twente student conference on IT (TSCIT)](). It takes place twice a year, Q1B (10 weeks) and Q2B (11 weeks), and has several phases as shown in Fig.1. Phase 0 is for preparation. Before the module begins, students have to sign up to a track in Canvas and select a research topic. The first phase is from W1 to W2, and entails the research proposal. The second phase (W3-W9-Q1B or W3-W10-Q2B) is devoted to performing the research itself and finishing the research paper. In the last phase, in W10-Q1B or W11-Q2B, the conference will take place and students will present their work. The following sections introduce the detailed work and guidelines involved in each phase. During the module, several tutorials on literacy search, proposal writing, paper writing, and presentation will be given at Canvas. Attendance for these sessions is compulsory.

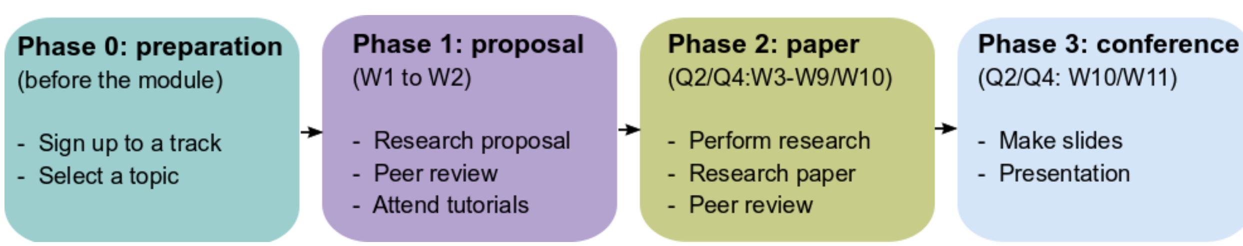

Fig.1 Four phases of the research component

The module/conference contains several tracks. Each track has one or more track chairs. The main responsibilities of the track chair include:

1) Contact supervisors to collect research topics and remind supervisors about deadlines;

2) Help students select topics, find supervisors and organize regular track meetings with all track students;
3) Organize a track session at the final conference.

The track chairs are the only contact point between each track and the module coordinator. The detailed work involved in each phase and guidelines is documented in the following sections. The module coordinator will remind the track chairs about the upcoming tasks at each phase via emails.

Supervisors will provide direct guidance to the students and evaluate their performance. They will be invited by the track chairs to Easychair as PC members to review the submissions of their own students. There will be a reminder from Easychair about the review due at each phase.

Note that, it is important that all mentioned deadlines including submitting proposals, reviews, and evaluation forms are met by students, supervisors, and track chairs in order to complete the module in time.

Phase 0: Preparation

There are three tools involved in this module as shown in Fig.2 and the module coordinator will make them ready at least 2 weeks before the module starts.

1) Canvas is used to give lectures and organize regular track meetings. The final conference might also be held in Canvas. For TSCIT 37, the conference is planned live on campus but might revert to MS Teams if necessary.
2) Conference website provides detailed information of each track, the submission deadlines and guidelines, and the proceedings from the past editions. The final accepted papers will be included in the conference programme on the website, which is accessible by the public.
3) Easychair (link in the conference website) is used for paper submission and review.

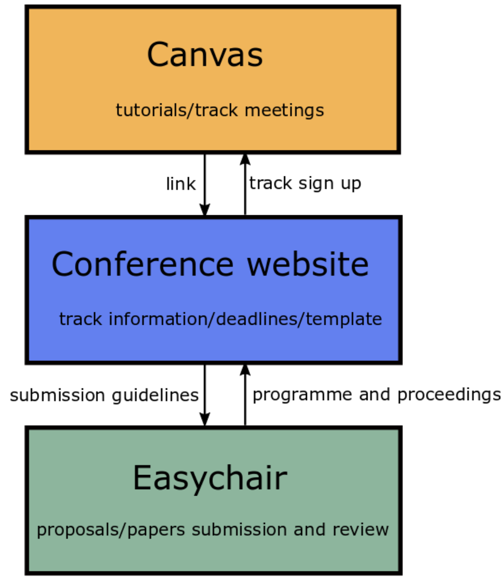

Fig.2: Three tools involved in the module

The module coordinator will invite track chairs to Canvas as teachers and to Easychair as `chairs' before the module starts. For configuring the conference website, track chairs have to provide the track descriptions to the module coordinators, which should contain the following information:

1) A short introduction about the track;
2) Suggested topics: this is a list of a topic theme, and not a detailed assignment or research questions;
3) Further reading: this should indicate where students can find more details related to the theme of the track.

The students will refer to the information on the website, select and sign up for one track via Canvas (@tab People) before the module starts.
PLEASE NOTE: the students will select the track and the topic before the module starts. This means track chairs should be available and coordinate the student-supervisor assignment.

Phase 1: Proposal

This is the first phase of the research project from W1 to W2. There will be only 1 round for the proposal, either go or not go. The decision is made by the supervisor and double-checked by the track chair (if it is a no-go). The students have to select the preferred topics within the track, review the state-of-the-art, write and submit a research proposal. The track chairs will help students find supervisors and assign reviewers (2 peer students and the supervisor) for each proposal. The supervisors will review the proposal and provide feedback. They need to fill the summary of the comments in Easychair. The detailed comments can be added in the paper and sent to the students personally.

1.1 Topic selection and supervisor assignment

Ideally, all students should have a track and a topic **before** the module has started. The first track meeting is on the first day of the module to help the students get familiar with the selected track. The track chairs should inquire if all the students have indeed already selected a topic and, if not, guide the remaining ones towards the topics which have not yet been selected or discuss other possibilities with the students.

If track chairs are not familiar with Canvas, B.1 documents the instructions for organizing a track meeting in Canvas.

Based on the discussion, every student should have their research topic. They should contact the supervisors for further information, perform an initial literature review of that topic, and identify the research problem and context. This will be discussed in the 2nd track meeting on Thursday, W1.

Track chairs will invite the supervisors within the track as “normal PC members” following the instructions in B.2 before W2 and fill the student-supervisor-grade list in MS Teams.

1.2 Proposal submission and review

Students have to submit the proposal by the end of W2 to Easychair following the submission guidelines on the conference website.

Please remind them to select the **submission type as “Proposal”**. Track chairs will assign each proposal to the corresponding supervisor and two track students for reviewing before 10:30 hrs, Monday, W3. The instructions can be found in B.3. If track chairs do not want to receive so many emails from Easychair (about new review updates, etc.), please follow steps 1-3 in C to keep only the notification about your track.

Module coordinator will remind the supervisors about the review due via Easychair referring to B.4 before 12:00 hrs, Monday, W3. Supervisors have to fill all required fields in the review form in Easychair and submit the comments by 23:59 hrs, Tuesday (1-day extension if there is a holiday), W3. The module coordinator will distribute the comments to the students (in B.5) before 9:00 hrs, Wednesday (1-day extension if there is a holiday), W3. Only the students whose proposals get accepted can continue with this module.

Phase 2: Performing research and research paper

The second phase of the research project is to perform research and complete a research paper within 7-8 weeks. There are two rounds for the paper submission, the draft version and the final version, to help the student improve the quality. The track chairs will organize regular track meetings. With these meetings, students can exchange ideas with peers and monitor their own progress. Supervisors will review the papers and provide feedback. For the draft paper, they need to fill the summary of the comments in Easychair; while for the final paper, they only need to provide 1-2 sentences to indicate whether the comments have been well addressed and whether the paper is acceptable now. Only the accepted papers are allowed to be presented in the conference.

Note that, the conference organization committee will select the best papers based on the draft version (due to limited time). Students who are willing to get this award should make the paper ready at the earlier stage.

2.1 Performing research

Students are expected to keep regular contact with the supervisors. Track chairs will organize regular track meetings. Via these meetings, students can discuss with each other and reflect on their own progress.

2.2 Mobility online registration

It is mandatory for the students to register the research projects in the application Mobility Online (MOL) , otherwise BOZ cannot register the final grade. Students have to start the registration before the end of W7. The information can be updated/corrected before the end of W9. Below are the instructions:

In the form, students only need to name the track chair as the committee chair and don't need to name the other persons involved in the supervision. After completing the form, students have to sign and send the forms (in pdf version) by email to the track chair for another signature. Track chairs can use their preferred methods to sign and send the signed forms back. Students can then upload the signed versions to the system. If track chairs do not receive the signing request from the students, please remind them before W7. If you are told that your name can not be found in the system, you could contact the module support for help. The students can contact Sharon Vonk (s.b.a.m.vonk@utwente.nl) if they meet any problems.

2.3 Draft paper submission and peer-review

Students need to submit the draft papers before 23:59 hrs, Sunday, W8-Q1B/W9-Q2B. Please remind them to start a **NEW submission** and select the submission type as ``Research Paper".

Track chairs will assign each paper to the corresponding supervisor and 1 track student for peer-review referring to B.3 before 10:00 hrs, Monday, W9-Q1B/W10-Q2B. Please include the submissions from your track in your watchlist following steps 1-3 in C, so that you will receive an email from Eaychair containing the review every time a review on a paper is updated. This is useful for creating the evaluation forms and can also avoid redundant emails from the submissions of other tracks, as in default all submissions are included to your watchlist.

Module coordinator will send to PC about the assignment following the instructions in B.4 before 12:00, Monday, W9-Q1B/W10-Q2B. The reviewers need to submit the comments before 23:59, Tuesday, W9-Q1B/W10-Q2B. At this stage, please remind them to check the ``best paper nomination" box if they would nominate the paper as best paper award. Module coordinator will distribute the review comments before 9:00 hrs, Wednesday, W9-Q1B/W10-Q2B.

2.4 Final paper submission and peer-review

The students have to revise the paper according to the feedback and submit their final papers before the end of Sunday, W9-Q1B/W10-Q2B. Please remind them to only update the previous submission and **DO NOT** start a new submission, otherwise the new versions will not be reviewed. The module coordinator will send to PC about the paper update before 9:00 hrs, Monday, W10-Q1B/W11-Q2B. If students still add new submissions, the module coordinator will delete their submissions with a warning message and request them to update their previous submissions.

The supervisors will review the final paper and indicate in Easychair whether the previous comments are well addressed with 1-2 sentences and whether the paper is acceptable now before 23:59, Tuesday, W10-Q1B/W11-Q2B. The detailed comments are not needed in Easychair, but can be added to the paper and sent to the student personally. The module coordinator will announce the notification to all students by 9:00 hrs, Wednesday, W10-Q1B/W11-Q2B.

Only the students whose papers get accepted can present their work in the conference. For the rejected paper, there could be a resit with limited audience, but it needs a valid reason, e.g., birth or illness. The organization is up to the track chairs.

If students want to make any changes after receiving the comments, they can still revise the paper and upload it to Easychair (update the previous submission) before 14:00, Thursday, W10-Q1B/W11-Q2B. This version will not be reviewed, but will be accessible by the public via the conference website as the camera-ready version.

Phase 3: Conference

The conference will be held on the last day of the module, i.e., Friday, W10-Q1B/W11-Q2B. Students will present their work in the conference and track chairs will moderate their track sessions. The presentation requirement and detailed organization of the conference will be published in Programme and proceeding of the conference website. The module coordinator and track chairs will start to prepare for the conference starting from W9-Q1B/W10-Q2B. It involves the steps below.

3.1 Conference programme

After the draft paper notification, the module coordinator will prepare the draft conference programme and send it to the track chairs before 18:00, Wednesday, W9-Q1B/W10-Q2B. The track chairs will send the presentation order of the track back before 23:59 hrs, Thursday, W9-Q1B/W10-Q2B. The order mainly depends on the availability of the supervisors. If track chairs are not sure whether the final papers of some students can be accepted, please put them in the end and leave a note.

The module coordinator will finalize the conference programme before 18:00, Wednesday, W10-Q1B/W11-Q2B and make the camera-ready versions downloadable by the public before 15:00, Thursday, W10-Q1B/W11-Q2B.

3.2 Best paper nomination and award

Based on the peer-review results of the draft paper, each track can nominate max.2 best paper nominations. Track chairs should send the nominations to the module coordinator before 23:59 hrs, Thursday, W9-Q1B/W10-Q2B. Depending on the number of students, a second-round selection might be needed (Please do not tell the students about your nominations in advance).

The module coordinator will add the best paper nominations of the conference to the conference website before 12:00 hrs, Monday, W10-Q1B/W11-Q2B. The track chairs will contact the supervisors of the best paper nominees to prepare a 1-minute speech to explain why the work should be nominated. The speech will be delivered during the plenary session of the conference. The best paper award will be selected out of the nominations and announced during the conference.

3.3 Test presentation

Track chairs will organize a rehearsal session during the track meeting in W10-Q1B/W11-Q2B for the students to test their presentations. This can be done also earlier during any of the track meetings. In order to avoid trouble during the conference, this session is mandatory for the students to attend.

3.4 Uploading accepted papers to UT student theses system

Students need to upload the accepted papers to the official website of UT theses system right after the conference. The assignment will be marked as finished after BOZ receives the thesis and the plagiarism check report.

4. Grading and evaluation form

The supervisors and track chairs are responsible for giving grades to the students. The final grade is determined by the scientific quality (50%), paper writing (20%), oral presentation (10%) and the overall process (20%), and weighted accordingly. It can be any value between 1.0 and 10.0. An insufficient grade (5 or lower) means the student should repair or repeat this module. The grading rubric for each item is in appendix A.

Moreover, BOZ asks for the evaluation form for each student, which should contain the student's name, paper title, the comments from the supervisor and the final grade. These forms must be included in the student file to declare that he/she passed at the University. Each form needs to be signed by two examiners, i.e., both supervisor and track chair. If the supervisor is indeed the track chair and there is no additional track chair, please ask other colleagues for an additional signature.

Appendix C summarizes the steps involved to create the evaluation form. More specifically, the module coordinator has prepared a ``Evaluation-Form-Template", which consists of two parts. The first part is the review of the supervisor. This can be copied by the track chair from the received Email, because he/she will receive an email from Easychair containing the review of the final paper before 23:59 hrs, Tuesday, W10-1B/W11-2B, if he/she follows the instructions in Sec.2.3 (i.e., steps 1-3 in C). After that, the track chair should send the forms to the supervisors before 23:59 hrs, Thursday, W10-1B/W11-2B. Supervisors need to enter the grading items in Part 2 of the form, convert it to PDF, insert their digital signatures and send the form back to the track chair directly after the student's presentation. The track chair can then add his/her own signature in the form.

The track chair has to send the evaluation forms to the module coordinators and fill the student-supervisor-grade list of his/her track in Teams by 17:00 hrs, Thursday, W11-Q1B/W12-Q2B. Module coordinator will send the grade sheet to the exam office and the evaluation forms to the BOZ by 18:00 hrs, Thursday, W11-Q1B/W12-Q2B.

A. Rubric

The final grade is based on the assessments of four parts and weighed accordingly. The rubric of each grading item is explained below.

1. Scientific Quality rubric (weight: 50%)
    - bad (1.0-3.0): There are unacceptable errors or omissions in the reported work. The results will not generate interest from any direction
    - insufficient (3.5-5.0): No clearly identifiable scientific method can be identified in the reported work. The results are potentially interesting for some stakeholder(s), but are insufficiently mature to be very useful
    - sufficient (5.5-7.0): The reported work is at a sufficient level, corresponding to the (courses in the) bachelor programme. Results are sufficiently interesting to some stakeholder(s), although they require further processing
    - good (7.5-8.5): The reported work goes beyond that which can be expected and contains some truly new or original results. These results are interesting and can be used straight away by some stakeholder(s). The work is publishable with some polishing or extra effort.
    - excellent (9.0-10.0): The reported work contains very good results and already have demonstrable major impact for some stakeholder(s). It is directly publishable with very minor revisions.

2. Paper writing rubric (weight: 20%)
    - bad (1.0-3.0): The report shows extensive signs of plagiarism, or is barely readable because of bad structure, frequent textual mistakes and/or missing explanations.
    - insufficient (3.5-5.0): The report shows signs of plagiarism, or is hard to read: its structure, use of language and completeness leave ample room for improvement.
    - sufficient (5.5-7.0): The report is mostly readable, of sufficient quality, and contains all expected parts
    - good (7.5-8.5): The report is well-written, a pleasure to read and has a natural flow
    - excellent (9.0-10.0): The report reads like a polished research paper, written masterfully

3. Oral Presentation rubric (weight: 10%)
    - bad (1.0-3.0): The presentation was very hard to understand for all the audience; questions did not receive useful answers

- insufficient (3.5-5.0): The presentation was targeted either too high or too low, or left clear room for improvement in style and fluency; answers left room for improvement
- sufficient (5.5-7.0): The presentation was a reasonable representation of the work; questions were answered sufficiently well
- good (7.5-8.5): The presentation was a pleasure to attend and gave a good all-round overview of the work; questions received well-thought-out answers
- excellent (9.0-10.0): The presentation was pure entertainment, leaving everybody feeling that they learned a lot.

4. Overall Process rubric (weight: 20%)
   - bad (1.0-3.0): The student has either not sought badly needed guidance, or has not appropriately picked up urgent suggestions, or (on the contrary) has had to rely on constant guidance; does not attend any of the tutorial and does not submit any of the peer-review before the deadline
   - insufficient (3.5-5.0): The student was not very responsive to guidance or (on the contrary) has needed significant guidance; miss some of the tutorials without valid reasons and/or does not submit all peer-review before the deadline
   - sufficient (5.5-7.0): The student has mostly found a reasonable balance in seeking and using guidance; attend all tutorials and submit all peer-review before the deadline
   - good (7.5-8.5): The student showed proper initiative, was mostly in control, and figured out most practical issues him/herself; attend all tutorials and submit all peer-review before the deadline
   - excellent (9.0-10.0): The student ran the whole show with very little or no guidance, and was a pleasure to supervise; attend all tutorials and submit all peer-review before the deadline

B. Guidelines for using Canvas and Easychair

B.1 Organize track meetings in Canvas

Here are the instructions to organize a track meeting in Canvas:

1. @People, click “Conference Tracks”
2. Click the three dots on the right side of your track name and click “Visit Group Homepage”
3. @Conferences, click “+ Conference” button
4. If you want to record the meeting, check the first option box; if you don’t know how long the conference will last, check the second box.
5. Then click “Update” button
6. Click “Start” to start the meeting. Once the meeting is started, others can see a “Join” button to join the meeting.
7. After the meeting is over, click the “End” to terminate the meeting. If recording is enabled, the video link will appear in the concluded conferences.

B.2 Invite supervisors as PC members to Easychair

1. @tab “PC”, select “Invitations to PC”
2. In the up-right corner, select “Make invitation”
3. Select “ordinary PC member” in the “Role” box
4. Input Invitees, one per line, using the format: FirstName LastName <EmailAddress>.

If a first name or a last name consists of more than one word, put it in double quotes. If there is no first name, leave the first name empty. Examples are given below

> Andrei Voronkov <andrei@easychair.org>
> “Juan Antonio” “Navarro Perez” <juan@easychair.org>
> “” Simon <simon@easychair.org>

5. Keep the text in the “Subject” unchanged and write something in the “Letter text”, e.g.

> Dear [*FIRST-NAME*],
> Thanks for providing the research topics and supervising the student(s) for their research projects. Your guidance and expertise are very valuable and important for a successful conference.
> On behalf of the 35th Twente Student Conference on IT Organizing Committee, we would like to invite you to be a member of the Programme Committee. As a member of the Programme Committee, you would be expected to review the proposal(s) and paper(s) submitted by your student(s) and provide feedback. We hope you will accept this invitation at your earliest convenience.
> Thank you very much for your collaboration!
> Best regards,
> xxTSCIT committee

6. Click “Invite”, you can preview the invitation instance
7. Click “Invite” again to send the invitation.

B.3 Peer-review assignment in Easychair

Below are the instructions for the review assignment to supervisors and students in Easychair. Once the supervisors accept the invitation from B.2, they will become PC members of the conference in Easychair. You can use steps 1-3 to invite them to review a submission. If they have not accepted the invitation before the review starts, you can request for their review by adding them as sub-reviewers following steps 4-8 (the same way as inviting students).

1. @tab “Submissions”, click “View by topic” in the up-right corner
2. Click your track name under “Topics”
3. Click “assignment” icon for each paper and check the box to select the PC member (i.e., the supervisor of the work)
4. Then click “Submission information” in the up-right corner
5. Click “Request review” to add a student as a sub-reviewer: fill in the first name, last name, email address and the “Message” box.
6. Click “Send Request”, you can preview the message instance
7. Click “Send Request” again to send the invitation
8. Repeat Step 5 to step 7 to add the second student as a sub-reviewer.

B.4 Send to PC about the assignment and review deadline

1. @tab Assignment, click “Send to PC”
2. in the “Message” box, add the review request and deadline

B.5 Send notification/reviews to authors

This function will be used 5 times: proposal (twice: accept/reject), draft paper (once), final paper(twice: accept/reject). When sending notifications to final proposal/paper, two kinds of messages need to be sent to differentiate rejected and accepted work. Under “Select decisions”, we can

choose either “Reject” or “Accept” to send different messages. Note that when send notifications about their papers, the proposals should not be checked.

1. @tab ‘Reviews”, click “Send to authors”
2. If it is draft proposal/paper, check the “reviews” box only; if it is the final proposal/paper, check both “notification” and “reviews”.
3. Adding the instructions for the next submission to the “Message” box
4. Click “Send Email” to preview the Message instance
5. Click “Send” to send the notification and/or reviews to authors

B.6 Set decision of a submission

Below are the instruction to set decision for the final proposals/papers.

1. @tab ‘Submissions”, click “View by topic”
2. Click your track name under “Topic”
3. Click the “information” icon for each paper
4. Click “Show reviews” on the up-right corner to read the comments from reviewers
5. Go to the top of the page, and click “change” at the “Current decision” to select either “Accept” or “Reject”.
6. Repeat Step 3 to Step 5 to set decision for other papers in your track

C. Create the evaluation form

Here are the instructions for creating the evaluation form before the conference using the "EvaluationForm-Template" (at Canvas/Files/Evaluation Form/). Supervisors can enter the rest of grading items directly in the form during the conference, sign it and send it back.

1. @tab 35tscit in Easychair, click "My Watchlist".
2. Select the submissions that belong to your track
3. Click "Save Watchlist"
4. You will receive an email from Easychair every time a review on a paper is updated. After receiving the review of the final paper (between Monday and Tuesday, W10-1B/W11-2B), you can copy the contents from your Email to Part 1 of the "Evaluation-Form-Template"
5. Send the form to the supervisor and ask him/her to enter Part 2 during the conference. The supervisor also needs to convert the form to PDF, add his/her digital signature and send you the form back.
6. You can then add your digital signature.