Université Saint-Joseph de Beyrouth

Ecole Supérieure d'Ingénieurs de Beyrouth

Final Year Project Handbook

2017-2018

By the FYP Committee

Edition 1.4

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Contents

1   Introduction

The Final Year Project (FYP) is compulsory for all engineering undergraduate programs in the Faculty of Engineering, ESIB. It is carried out by groups of 2 to 3 engineering students, and aims at providing them with a practical design experience in their field of study, with the supervision and approval of a faculty supervisor. Students should make the necessary research work in order to specify the project's requirements and realistic technical and non-technical constraints. Students will then, accordingly, propose the specifications of a suitable solution through an improvement process based on iteratively considering and evaluating alternatives. The success of the project depends not only on the final implementation, but also on the quality of both the team work and the required deliverables, mainly the final report and presentation.

The current document is intended to provide general guidelines for engineering students in planning and implementing their Final Year Project (FYP). It describes the project timeline, the main work phases, the required deliverable and the assessment method. For any further information please contact the FYP coordinator of your program.

2   FYP process summary

This section summarizes the main information about project phases, due dates, required deliverables, and grading percentages. More details will be given in the remaining sections.

The following figure shows the global FYP timeline along with the corresponding deliverable.
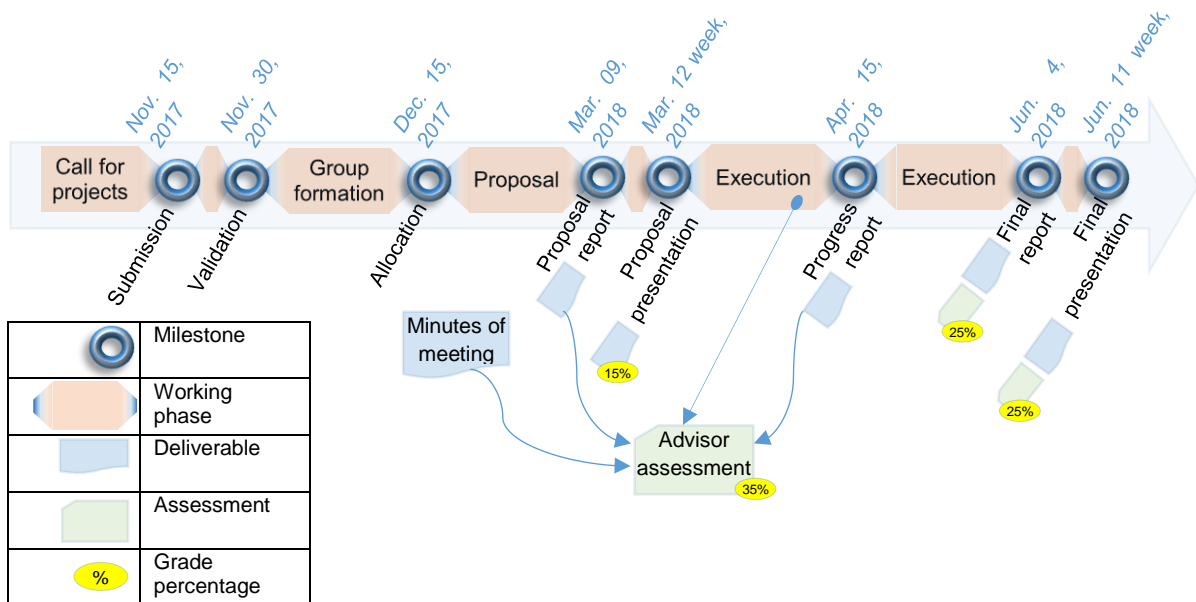

Figure 1: FYP timeline, deliverables, and grading

3 Project phases

Phase	Description
Call for project	Full-time and part-time faculty who are assigned an advisor role for the current year by the department, are invited propose projects by filling the project description template (appendix 1). Students who have project ideas are invited to find a faculty who would accept to be the advisor of the project.
Selection and publishing	A validation committee will study the submitted projects and will retain the projects that meet the FYP requirements (availability of resources, major design experience, etc.). The number of students per project will also be validated by the committee. The validated projects will be published on the Moodle platform so that the students make their choice.
Allocation	The students are invited to form groups. In the case of a selected project that was jointly proposed by an advisor and a group of students, the allocation is automatic. Students are given two weeks to submit their choice. Meanwhile, they are strongly advised to discuss the projects with the advisors. Each group can submit a first and a second choice. Students should be aware that an advisor has a maximum number of projects to supervise. In the case of a conflict over a project, the priority is given to the advisor to choose the group, otherwise the committee will make the allocation.
Project proposal	This is the first working phase of the project. The students, with the help of their supervisor, should define clear objectives for the project and identify all requirements and constraints that have to be met. A documentation work is necessary to help students view the current state of knowledge and be able to make reasoned decision about the concepts and tools to use in their solution. Students will brainstorm ideas and try to compare different approaches in order to come up with the specifications of their proposed solution. They should also identify any needed resources or engineering tools to be used in the implementation phase. Students could also realize preliminary implementation and testing. During this phase, students will prepare the proposal report, which is a progress report documenting the proposal phase and providing the

		methodology and the required tools that will be used in the execution phase. A proposal presentation is also required.
Project execution (or implementation)		In the execution phase, students will implement their proposed solution. The most important aspect to consider here is the iterative improvement process that should take place. The students should be able to establish a closed loop to enhance their solution and its adequacy to the initial requirements and constraint, by performing a series and tests and improvements.
Final report and presentation		The final report is the culmination of the FYP where the students should document all the work done in a scientific and professional manner. A final presentation is also scheduled.

N.B.: All deliverables can be written either in English or French.

4 Project deliverables

Deliverables are required documents that students should provide in order to successfully complete their FYP. A group deliverable is a single document written by the students group while an individual deliverable has to be provided by each member of the group.

Note that the templates for some deliverables will be provided. All reports and minutes of meeting must be uploaded on Moodle.

To avoid plagiarism:

- All quotes must be cited.
- Even when the students paraphrase (i.e., translate authors' words into their own - something that is desirable) authors must still be given credit by including a citation. When a paragraph of material is based on some author's ideas, it is sufficient to have one citation placed at the end of the paragraph.
- All published statistics require a citation immediately following the sentence in which they appear.
- All historical events and dates mentioned require an immediate citation.

See www.plagiarism.org/ for more details.

Deliverable	Due date	Description
Minutes of meeting (see appendix 2 for template)	Twice a month	For every meeting with the supervisor, students should write minutes of meeting that document: - Discussion outlines. - Main conclusions. - Most importantly the actions to do, their due dates and the responsible of each action. Minutes have to be shared with the supervisor and as all deliverables, uploaded on Moodle. (see template in Appendix 2)
Proposal report (see template on Moodle)	See timeline in Figure 1	After the proposal phase, the proposal report contains mainly : - Requirements and technical and non-technical constraints such as: needs, performance, standards, specific behavior, transmit power, power

		consumption, environmental, economical, ethical, etc.). - A research section where a literature review is performed to see how others tackle similar problems and the characteristics of existing solutions. - A proposed solution with its specifications and the rationale behind the choices made by the group. A comparison between the proposed solution and other alternatives is more than welcome. - Project planning, division of works, Gantt chart, etc. - Required resources (hardware, software, etc.) - A summary of the work progress
Proposal presentation	See timeline in Figure 1	This presentation is an opportunity for the group to expose his solution approach, defend its choices, and get feedback from the evaluation committee. It should contain globally the same elements as in the proposal report.
Group progress report	See timeline in Figure 1	This report should summarize the work that has been done since the proposal phase with an emphasis on the implementation and testing works, obtained results, encountered issues, etc…
Final report (see template on Moodle)	See timeline in Figure 1	A detailed template provides the main structure and important sections to include in the final report. The template also defines the format to follow.
Final presentation	See timeline in Figure 1	The students have to present their project, its objectives, requirements, and constraints, the related contemporary issues, their proposed solutions with justified choices they made, the implementation they realized and the main results they obtained. They are expected to show a professional attitude and a high level of communication skills.

4.1   Moodle as a FYP platform

Moodle will be used by students and supervisors as a digital platform for progress follow up and document management. Appendix 3 provides a brief help on Moodle usage as an online platform for FYP.

5   Project resources and cost – fund request

A final year project could possibly need hardware and/or software resources for implementation purposes. In order to acquire these resources, the students should apply the following procedure:

- Check if the advisor or industrial sponsor of the project can provide the required resources.

- For unavailable resources, send a request to the CINET (Centre des industries Electriques et des Télécommunications).

- The CINET studies the request, provides resources that are locally available, and requests a faculty contribution from the Dean. The faculty contribution could cover all or part of the missing resources.

- The students have to afford the costs that were not covered by the faculty contribution.

6 FYP assessment and relation to ABET accreditation

The FYP is the culmination of the engineering curriculum where the student is expected to apply the knowledge he acquired throughout the design and implementation process. Beside this knowledge integration aspect, the FYP is a first step in the real word of engineering and the students will also have to show teamwork capabilities as well as professional approach and behavior. Consequently, the assessment process of the FYP is multidimensional, and seeks to assess the following skills:

- Engineering knowledge
- Problem solving capabilities
- Design skills
- Professionalism
- Teamwork
- Communication skills

These skills are closely related to the program outcomes required for accreditation by the Accreditation Board for Engineering and Technology (ABET). They will be measured at different points in the project process and using all deliverables. The following table shows all items that will be assessed and their mapping to the ABET outcomes KPIs.

Item	KPIs	Grading tool	Evaluator	Percentage
Proposal presentation	j1	rubric	Committee	15%
Final report	c1, c2, c3, e2, k1, k2, k3, g1, h1	rubric	Supervisor	25%
Final presentation	g1, g2	rubric	Committee	25%
Overall work (incl. proposal report and minutes)	e3, i1, i2	Supervisor assessment rubric	supervisor	35%

7 Supervisor role and follow-up procedure

The FYP supervisor plays a twofold role:

- A consultant who guides students by giving them feedback and advices.
- An evaluator who provides individual assessment of each member of the group.

The following is a summary of the supervisor duties:

- After group formation and project selection, the supervisor logs in to the related Moodle course. (FYP_ELEC, FYP_CCE, or FYP_CIVIL).
- Under the section "FYP 2017-2018", the supervisor enters the group choice activity named "group formation" and choose to join the groups he is supervising (groups has the same numbers as the corresponding projects). Students and their supervisor will all be member of this Moodle group.

- The supervisor should regularly check that students are properly submitting their minutes of meeting and their reports on Moodle.
- The supervisor evaluates the proposal and the final report using rubrics.
- The supervisor evaluates the overall work performance of each student using the supervisor assessment rubric.

8 Some tips for students

Dear student, this is **your project** not the supervisor's one. You have to do your best to make it a successful experience. Here are some advices and guideline that provides some success keys.

Work aspect	Guidelines
Supervisor role	- The supervisor is not the one who will design the solution. - He is not responsible of solving occurring problems. - He is your guide and consultant, gives you directions and advices, not solutions to implement nor homework to do.
Meeting guidelines	- This is your meeting! Contribute to the agenda of the meeting. You know the best what are the problems you want to discuss. - Be all in the meeting. The other group members are not your representatives! - For each meeting, choose a minute taker who will be responsible of the minutes and their accuracy
Be good designers	- No one will give you the solution. You have to design it. - You have to work hard to formulate the problem, to analyze its requirement and constraints, and to come up with a suitable solution. - Do not be afraid of trying things and changing choices already made. The design process is an iterative improvement, and you will be assessed not only based on the quality of the final product, but also on the methodology you adopted. - Make timelines and define milestones.
Teamwork	- Try, with the help of the supervisor, to define roles in the team and distribute tasks accordingly. - Collaborate and communicate. - You have the right of not doing the project alone, and the right to claim you share of the work load. - Inform your supervisor about any team related issues.
How to cover the project cost	-

Appendix 1: Project Description Form

1. **Reference code (By Admin)**:

2. **Faculty advisor***:

3. **External partner (person, company, lab, etc.)**

4. **Students** (if applicable)

5. **Sponsor**

6. **Project title***

7. **Project objectives*:** (1-2 sentences to explain the objectives of the project)

8. **Project outcomes*:** (Short description of the expected results)

9. **Project description***: context, issues, impact…

[blank box]

10. **Requested number of students* (between one and four)**:

In case of multiple students, please indicate

11. **Roles and tasks distribution**:

In case of multiple students requested, please indicate the role and tasks for each student.

12. **Requirements/Constraints***: technical and non-technical

[blank box]

13. **Contemporary issues**: cite recent literature to explain how your project addresses contemporary issues.

[blank box]

14. **Critical resources**: list of essential resources needed for the project(software, hardware, equipment, data, etc.)

Resource	Provided by: advisor, partner, sponsor, other.	Estimated Cost	Notes
Matlab	ESIB		Need for a particular toolbox

Arduino	Sponsor / CINET	15 USD	Needed at the project kickoff
Pollution data set*	Partner		

15. **Standards** used

16. **List of disciplines***: (keep the discipline that best describes your project)

power systems, power electronics, control, mechanical, machines and drives, Signal transmission, Signal processing, communications and networking, software engineering, computer systems, circuit and electronic, public works, design of bridges, design of roads, design of dams, Buildings, design of structures, frames, concrete, steel Water and Environment, design of irrigation systems, design of wastewater treatment plants, design of dams…

17. **Number of students*** (between 2 and 4)

18. **Prerequisites**: List all required courses for your project

19. **Date**

Submitted by: (Name and Signature)

Appendix 2: Minutes of meeting template

Project Project ID

Meeting Meeting Number

MINUTES   [CLICK TO SELECT DATE]   [MEETING TIME]   [MEETING LOCATION]

MEETING CALLED BY	Advisor or students
NOTE TAKER	The student who is responsible of filling this document
ATTENDEES	Names of all attendees
NEXT MEETING	[CLICK TO SELECT DATE] AT …

AGENDA ITEM 1:		
DISCUSSION		
CONCLUSIONS		
ACTION ITEMS	**PERSON RESPONSIBLE**	**DEADLINE**

AGENDA ITEM 2:		
DISCUSSION		
CONCLUSIONS		
ACTION ITEMS	**PERSON RESPONSIBLE**	**DEADLINE**

Appendix 3: Moodle and FYP – Students How To

This section is a manual about the use of the Moodle FYP platform.

1- Each student has go to the USJ Moodle site: http://moodle.usj.edu.lb/ and log in using his USJ credentials.
2- Look for the ESIB course named FYP_CCE/FYP_EE/FYP_CIVIL [1]
3- After finding and clicking on the course link, you obtain the following page where you have to enter your student enrolment key. This key will be sent to you by the FYP coordinator.

4- The main page looks like this:

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[1] The screen shots are taken for the CCE Moodle course. The same procedure applies for EE and CIVIL.

The title of the main highlighted section is "**FYP [academic year]**". This sections contains all information, documents, and activities where students will form groups and upload all the deliverables. In the remaining, the FYP section is described.

In the section top, you can find the FYP timeline with main phases and milestones.

In the folder "**FYP [academic year] guidelines and documents**", you can view and download all FYP relevant documents:

- The guidelines containing a complete description of the FYP process.
- FYP slides presented to students and focusing on the design process.
- Reports and minutes of meeting templates that you should follow when writing these deliverables
- Rubrics that will be used to assess your work and deliverables, and where you can check all the relevant indicators.

FYP 2016 2017 guidelines and documents

1- FYP_ESIB_guidelines_2016_2017_v2.pdf

2- FYP presentation 2016-2017_v2.pptx

3- Project description form_v2.docx

4- Meeting minutes template_v1.2.docx

5- FYP_proposal_report_template_v1.2.docx

6- FYP_CCE_report_template_2016_2017.docx

7- Rubrics FYP assessment 2016 2017.xls

In the folder "**Projects and groups**", you can find the list of all proposed projects as well as the list of all students groups and their project selection. This folder will be filled after the group formation and projects allocation phase.

Projects and groups

List of Informatique groups

List of Telecom groups

Projects list
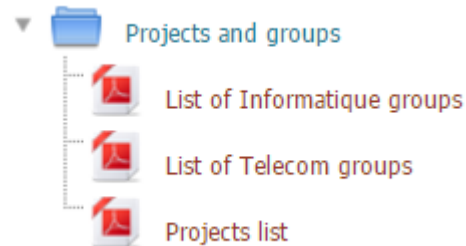
5- To choose your group, enter in the "Group formation" activity.

Projects and groups

List of Informatique groups

List of Telecom groups

Projects list

Group formation

Choose the group according to your project ID.

Minutes of meeting

Upload your minutes of meeting here.

Choose the group according to your project ID.

Choice	Group Show descriptions	Members	Group members Show
☐	B1	0	
☐	B10	0	
☐	B11	0	
☐	B12	0	

6- When the group wants to submit a deliverable, **only one member of the group** has to enter the related activity. For example, in the case of the proposal report, you go here:

Minutes of meeting

Upload your minutes of meeting here.

Proposal Report

Upload your proposal report. Follow the template attached.

Final Presentation

Upload your final presentation.

Final Report

Upload your final report. Follow the template attached.

N.B. You should have already chosen your group otherwise you will not be able to make a submission.

7- On the activity page, click on the "add submission" button to upload your file(s). You can also find the template of the corresponding deliverable on this page.

8- After clicking on the "add submission" button, you are now on the upload page. Some activities use "Turnitin" to check for plagiarism, which requires that you accept some terms and conditions. Now you can upload you file(s) and then save changes.

9- After clicking on the "Save changes" button, you will be taken back to the activity page. You can always make a modification by clicking on the "edit submission" button. When you are sure that this is the final version, you have to click on "submit assignment" button.

Moodle.USJ   📁 My courses ▸   📖 This course ▸

Proposal Report

Upload your proposal report. Follow the template attached.

📄 FYP_proposal_report_template.docx 📤
Export to portfolio

Submission status

Group	B1
Attempt number	This is attempt 1.
Submission status	Draft (not submitted)
Grading status	Not graded
Due date	Tuesday, 15 March 2016, 11:55 PM
Time remaining	23 days
Last modified	Sunday, 21 February 2016, 11:21 PM
File submissions	📄 Meeting minutes template.docx 📄 Turnitin status: Pending 📤 Export to portfolio
Submission comments	▸ Comments (0)

Edit submission

Make changes to your submission

Submit assignment

Once this assignment is submitted you will not be able to make any more changes.