

# Develop and Implement the Integrated Curriculum at FPT University

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The current demand of FPT University is how to develop program learning outcomes (LOs) responding to industry requirements, as well as to design the integrated curriculum that provides not only knowledge but also personal attributes and professional skills for students. Since 2016, FPT University has been researching and applying conceiving, designing, implementing, and operating (CDIO) basically and systematically in designing and renovating programs. In the range of this paper, the author will describe the curriculum design process for both public relations (PRs) program and E-commerce program. The outputs include program LOs, sequence of skills, and integrated curricula. Next, the article shares about the collaboration with industries to design the introductory courses in two selected programs. Finally, the article provides the information of faculty development programs to implement CDIO teaching and learning activities during the past years.

*Keywords:* conceiving, designing, implementing, and operating (CDIO), learning outcomes (LOs), integrated curriculum

## Introduction

At the beginning of 2016, we approached to conceiving, designing, implementing, and operating (CDIO) strictly when designing the curricula for the associate degree programs at FPT University. The curricula are outcome-based and integrated. The curricula are designed based on the comments, suggestions, discussion, and criticism of several stakeholders including Board of Management (BOM), alumni, employers, and industries. In addition, the associate degree programs are designed with on the job training (OJT) period. During the internship, students can learn by doing real projects in the partner companies. In terms of curriculum design, this project-based model ensures that the selection of courses and lessons has clear focus and maximizes practical values, equipping students with marketable skills, as well as connecting the knowledge and concepts from the previous semesters. Furthermore, courses are developed to link to program learning outcomes (LOs) accordingly. In a word, this likely helps students achieve expected learning outcomes after completing their programs.

In the range of this paper, we mention the process of applying CDIO systematically and thoroughly to develop and implement the integrated curricula for two associate degree programs: public relations (PRs) and E-commerce at FPT University from early 2016 up to now.

CDIO syllabus includes four main parts as following:

1. Disciplinary knowledge and reasoning (The United Nations Educational, Scientific and Cultural Organization [UNESCO]: Learning to know);
2. Personal and professional skills and attitudes (UNESCO: Learning to be);
3. Interpersonal skills: Teamwork and communication (UNESCO: Learning to live together);
4. CDIO systems in the enterprise, societal and environmental context—The innovation process (UNESCO: Learning to do).

Twelve CDIO standards are as following:

1. Context and goals 1, 2: Context and LOs;
2. CDIO curriculum and space 3, 4, 5, and 6: Integrated curriculum, introduction to engineering, design-build experiences, and CDIO workspaces;
3. Teaching and learning 7, 8: Integrated learning experiences and active learning;
4. Faculty development 9, 10: Enhancement of faculty competence and enhancement of faculty teaching competence;
5. Evaluation 11, 12: Learning assessment and program evaluation.

### Methodology

A case study approach was chosen as the research method. We wanted to study and account for basing on CDIO to design the non-engineering programs in some details in the paper (see Table 1).

Table 1

*Examples of Translation of CDIO Standards to Non-Engineering Professional Contexts*

CDIO standards		Domain	Translation
1	CDIO as context	PRs and E-commerce	Design, operate, and evaluate media outputs
2	Introduction to engineering	PRs and E-commerce	Introduction to public relations, and introduction to digital marketing
3	Design-implement experiences	PRs and E-commerce	Operate an event in an internal/external PR campaign of any company

### Case Studies

At the 1st period of CDIO Project at FPT University, we realize that it is necessary to establish and develop the skills of core values. They are values that we are oriented to during the period of designing and implementing CDIO. An abbreviated concept POLYTECH means:

- (1) Personal and professional skills;
- (2) Open thinking and innovation;
- (3) Lifelong learning;
- (4) Young communication and teamwork;
- (5) Technical knowledge and reasoning;
- (6) Ethical values;
- (7) Collaborative industry;
- (8) High responsibility.

Figure 1 illustrates a model for the design of an integrated curriculum. The model calls for a translation of the CDIO vision into a formal set of goals that will provide a foundation for curriculum design. This translation is informed by the desired LOs, pre-existing conditions, and curriculum benchmarking. Curriculum design

itself is then defined as the projection of these goals onto the courses and associated learning experiences that formally constitute a curriculum.

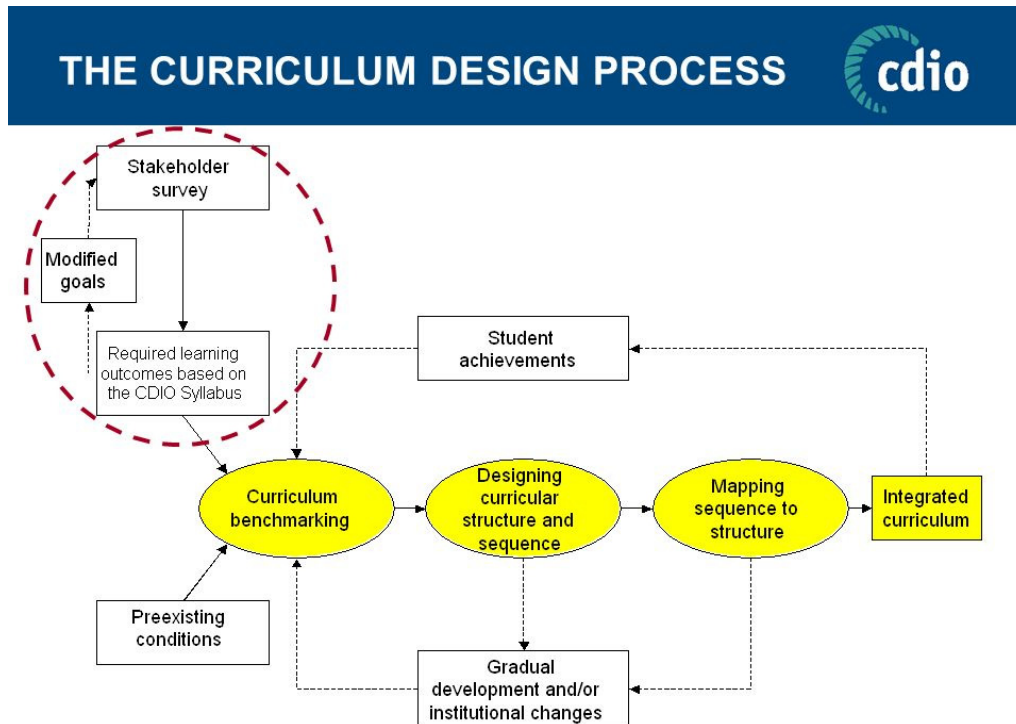


Figure 1. Integrated curriculum design process model.

Nextly, we based on CDIO integrated curriculum design process model to develop the new process of integrated curriculum design for FPT University (see Figure 2).

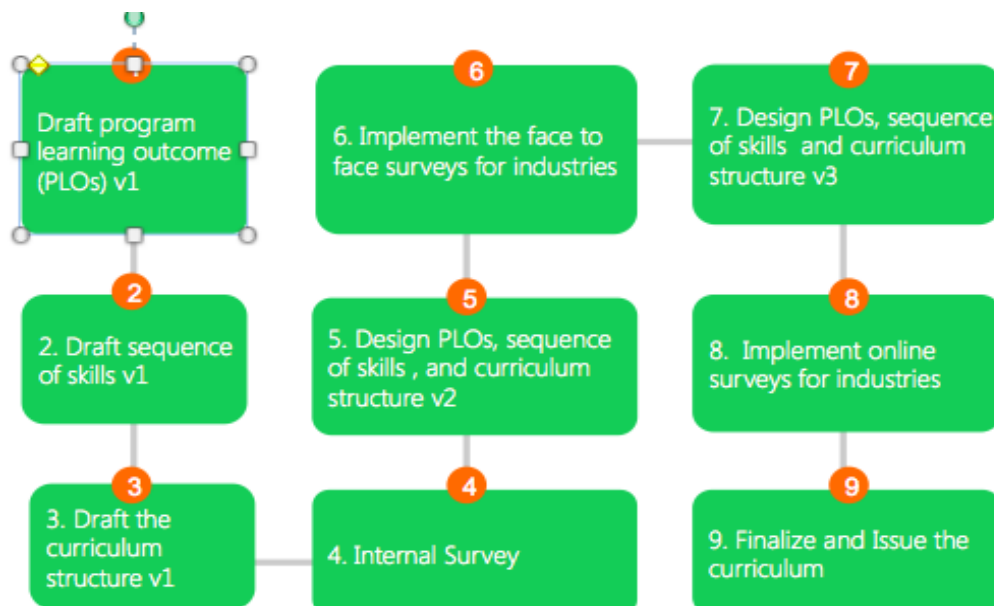


Figure 2. Integrated curriculum design process of FPT University.

In the first stage, we implemented the face to face and online surveys among faculties, Board of Director (BOD), and industries to finalize the program LOs and curriculum structures within one month.

At the second period of CDIO Project at FPT University, we approached to CDIO Standard 4 (Introduction to engineering) to design and implement introductory courses for PRs and E-commerce. In the context of PR and E-commerce professions, introductory courses provide the framework for PRs and E-commerce practices and mention essential personal and interpersonal skills requires in these professions. Specifically, this framework is a broad outline of the tasks and responsibilities of an employee working in the field of PR and E-commerce, and the use of disciplinary knowledge in executing those tasks. More than that, students engage in the practice of their professions through problem-solving, simple design exercises, and assignments, individually and in teams.

### Discussion

Now, we really come back to respond to a big question “Why two programs were selected”. First of all, since 2015 and 2016, we have started approaching to CDIO for non-engineering programs. Specifically, FPT University learned CDIO for non-engineering programs from CDIO Asian Regional Meeting in 2015, Vietnam with the theme: CDIO implementation for engineering education and beyond. More than that, the CDIO Project members also got advice of application CDIO in non-engineering programs from CDIO experts of University of Economics and Law (VNUHCM) through a CDIO tour at the end of October, 2015. Above all, FPT University carefully researched the full paper: Application of CDIO in non-engineering programmes—motives, implementation, and experiences (12th CDIO International Conference in 2016, Finland). Such best practices from International Business Program (VNUHCM, Vietnam) and Business Program (Turku University of Applied Science, Finland) really motivated and guided us to adapt CDIO for two associate programs: PRs and E-commerce thoroughly, systematically, and sustainably.

We start the face-to-face survey with these questions:

1. Can you remark on the program LOs (knowledge, skill, and attitude)?
2. Please evaluate the integrated curriculum basing on the following factors?
  - (a) Educational goals and job orientation;
  - (b) Curriculum structure and content;
  - (c) Teaching and assessment methods.

Let us show the feedback from industries on the LOs and integrated curricula of two associate degree programs: PRs and E-commerce (see Appendix).

From results mentioned on the Table 2, it is realized that the enterprises highly appreciate the curriculum design as FPT University approached to CDIO to develop LOs, such as personal attributes and professional skills, interpersonal skills (teamwork and communication) as well as conceiving, designing, implementing and operating in enterprise, and societal context. As a result, graduate students can qualify for the job requirements in the context of international integration nowadays.

Table 2

*Feedback on LOs (3rd Level) of Public Relations Program*

LOS	Reviewer N 1	Reviewer N 2	Reviewer N 3	Reviewer N 4	Reviewer N 5
1. Disciplinary knowledge and reasoning	RPs of Accounting course by a Financial Management course (LO 1.2.2); Supplement the writing skills course so that PR employees can represent and publicize for their organization (LO 1.3.3).	Add more knowledge of stage design, sound, lights, and games in event operation, e.g., Suggest adding the course: Entertainment skills	LO 1.1 Remove the course—Adobe Photoshop; LO 1.2.2 should be revised as following: Understand and make use of the fundamental knowledge of marketing for building the PR campaign and produce events.	Core fundamental knowledge is sufficient and reasonable; For communications crisis management, the developer carefully considers about the appropriate contents for the associate degree students.	Considering about replacing principles of accounting course
2. Personal and professional skills and attributes	Supplement “problem estimation ” (LO 2.1.1).	Totally agree	Supplement professional skills as following: Negotiation skills, creative thinking skills, public speaking skills, etc.	No comment	Add more skills: Sales skills, personal branding skills
3. Interpersonal skills: Teamwork and communication	LO 3.1.5: Design an entrepreneurship plan listed in this section is not correct.	Totally agree	That is fine	I agree that these skills are important for PR program; Keep in mind that let student experience and learn through real practices; Suggest a new course: Communication in PRs.	Agree
4. Conceiving, designing, implementing, and operating systems in the enterprise, societal, and environmental context	Should separate applying CDIO skills in the field of PRs and marketing to ensure the original training objectives.	Matching the requirements of industries and markets; Should integrate event operations with marketing and advertising campaigns.	Agree	CDIO skills are so necessary in PR programs	Future PR employees are expected to negotiate with customers directly and call for event sponsorships.

Table 3

*Feedback on the Curriculum of the Associate Degree Program: PRs*

Evaluation criteria	Reviewer N 1	Reviewer N 2	Reviewer N 3	Reviewer N 4	Reviewer N 5
1. Educational goals and job orientation	The curriculum is researched and developed basically. Besides, it is practical responding the demands of industries in the field of PR and event management.	The curriculum link the educational goals to human resource demands and the professional trends of the society.	The curriculum defines the clear job titles, job description for graduate students. However, you need to consider the ways to describe the general and specific goals of the program.	The curriculum provide students with the insights and clear goals of careers, expected LOs after they complete the program.	Educational goals and job orientation is rather good.

(Table 3 to be continued)

2. The curriculum structure and content	Focus on major courses; Leave out the course: Principles of accounting because the course of PR strategic planning mentions the content of financial management.	Appreciate the curriculum including more than 80% related to practices; Suggest the course of cheerleading skills, putting game shows into event operations and PR activities.	Emphasize on the advanced knowledge and professional skills so that students can find jobs after their graduation; Add the course “Public understanding” helping students understand public behaviors. As a result, they can develop reasonable plans and messages.	Appreciate the priority arrangement for practices so that students apply knowledge and experience during the periods of learning.	Supplement the courses of skills: Sales skill, graphic design, negotiation skill.
3. Teaching and assessment methods	Blended learning method is appropriate for the program emphasizing on the practices; Highly appreciate the project based learning.	Highly appreciate the approaching to CDIO in teaching and assessing the student performances.	The current educational methods are rather difficult for students graduating from high schools. So, at the beginning period, the school needs to support students to get on well with the blended learning.	The educational methods focus on the practices and encourage students to self-study.	

Table 3 mentions that the Board of Reviewers appreciates the curriculum, because it is outcome-based. Besides, reviewers also have good feedback on teaching and assessment methods.

Table 4

*Feedback on LOs (3rd Level) of E-Commerce Program*

LOs	Reviewer N 1	Reviewer N 2	Reviewer N 3	Reviewer N 4	Reviewer N 5
1. Disciplinary knowledge and reasoning	Principles of accounting is not essential Consider the E-commerce law course, let it alone or integrate with another course.	Revise the LOs as following: LO 1.3.3 Summarize and select effective Google analysis tools to analyze the consumer behaviors, serving for organizing effective marketing campaigns; LO 1.3.8 Explain and solve problems related to hosting and server.	Supplement many courses related to practical trends and market needs: Content marketing and consumer behavior	Quite satisfying	Principles of accounting is not essential
2. Personal and professional skills and attributes	Illustrator skills are quite tough for associate degree students. In reality, industries can employ employee majoring on graphic design.	Sufficient	Quite satisfying	Agree	Sufficient

(Table 4 to be continued)

3. Interpersonal skills: Teamwork and communication	Add more skills: Negotiation sales	Sufficient	Quite satisfying	Agree	No comment
4. CDIO systems in the enterprise, societal and environmental context	No comment	Sufficient	CDIO skills mostly satisfy industries demands, however, the university should adjust and improve continuously to approach closely to practical situations and fill the gap between industries and universities.	Quite satisfying	No comment

From the results on Table 4, companies point out that at first FPT University has to identify the goals of E-commerce associate degree program mainly majoring in Business or Information Technology (IT). Then, FPT University can develop expected LOs including knowledge, skills, and attitude, accordingly and match these LOs with industry demands in the field of Digital and Online Marketing.

Table 5

*Feedback on the Curriculum of the Associate Degree Program: E-Commerce*

Evaluation criteria	Reviewer N 1	Reviewer N 2	Reviewer N 3	Reviewer N 4
1. Educational goals and job orientation	The curriculum is oriented to the job positions for students after they graduate.	Need to describe the jobs and job titles more clearly.	Clear program goals help students understand the curriculum and their future careers.	The human resources for E-commerce are insufficient while E-commerce is essential for many fields of business and commerce. Thus, FPT University has a correct approach as developing this curriculum.
2. The curriculum structure and content	The curriculum builds the basic contents for Digital Marketing. However, FPT University should consider adding more trendy courses: Content Marketing, Search Engine Optimization (SEO) and Search Engine Marketing (SEM).	The curriculum is rather sufficient appropriate, and partly responds to the demands of industries; Leave out the course: Principles of accounting.	Divide Email and Social Media Marketing course into two courses: Email Marketing and Social Media Marketing; Add the course: Integrated Marketing Communications (IMC).	The curriculum lacks of the content of content marketing and customer behavior; Photophop and illustrator are merged in a course.
3. Teaching and assessment methods	Highly appreciate the student learning basing on the course LOs.	The teaching and assessment methods are updated and modern. For example, blended learning and project based learning.	The assessment methods include summative assessment and formative assessment.	Apply blended learning to encourage students to study at home before coming to class; In the project based learning, FPT University evaluates student learning through project outputs, report and presentation in each course.

From the results mention above in Table 5, we find out that FPT University needs to revise, and update our curriculum to satisfy industrial expectation and requirements. Specifically, we have to both leave out some unreasonable courses and add more reasonable courses for the E-Commerce Associate Degree Program. Besides, we rearrange the orders of courses and distribute the content in courses more appropriately.

After having two curricula finalized and approved, we invited the representatives from industries to engage in designing and implementing the introductory courses. We would like to orient students to the future career since the first semester in their programs. Our aims are stimulate students' interest in and strengthen motivation for the fields of PRs and E-commerce. In addition, introductory courses can provide an early start to the development of essentials described in the Program Learning Outcomes (PLO). In Table 6, we illustrate the relationship among PLO, course objectives, and course LOs.

Table 6

*Introduction to Digital Marketing Course's Objectives and LOs*

Main objectives	<p>G 1 Understand and apply the fundamental knowledge of PRs to identify PR activities in companies, recognize the importance of PR, and investigate the process to build the relationship among companies and medias. (PLO 1.2.1)</p> <p>G 2 Understand and make use of the fundamental knowledge of marketing for building the PR campaign and produce events. (PLO 1.2.2)</p> <p>G 3 Explain the issues of communications and globalization, describe essential knowledge in crisis management, as well as offer estimations, recommendation, and prevention unexpected crisis. (PLO 1.3.6)</p> <p>G 4 Demonstrate professional ethics and responsibility, plan career paths. (PLO 2.3.1, 2.3.4)</p> <p>G 5 Communicate orally: Telephone communication, face-to-face communication (PLO 3.2.1)</p> <p>G 6 Display written communication through emails, reports, and newspapers (PLO 3.2.2)</p> <p>G 7 Show the roles and responsibilities of people designing advertising, PR campaigns and producing events. (PLO 4.1.1)</p> <p>G 8 Relate to the sustainability and sustainable development of PRs profession. (PLO 4.1.4)</p>
LOs	<p>G 1.1 Present the nature and basic concepts of PRs.</p> <p>G 1.2 Explain roles and importance of PRs to organizations and individuals.</p> <p>G 1.3 Compare the differences between PRs and advertising, the relationships of PRs and Marketing Communications tools.</p> <p>G 1.4 Outline a seven step process of PRs strategic planning.</p> <p>G 1.5 Recognize the characteristics and roles of Internal PRs.</p> <p>G 1.6 Describe main activities in Internal PRs.</p> <p>G 1.7 Identify the relationship between Journalism and PRs.</p> <p>G 1.8 Build a journalist relationship plan for organizations and individuals.</p> <p>G 2.1 Operate event planning.</p> <p>G 2.2 Find the roles of community relations for organizations.</p> <p>G 2.3 Contrast core External PRs.</p> <p>G 3.1 Identify and prevent the risks of communication crisis.</p> <p>G 4.1 Listen and follow the career paths and professional codes in the profession of PRs.</p> <p>G 5.1 Compare the forms of interviews and how to respond to these interviews.</p> <p>G 5.2 Perform roles in interviews.</p> <p>G 6.1 Discuss of publications and the way to write each publication.</p> <p>G 6.2 Write a specific publication.</p> <p>G 7.1 Identify the necessary knowledge, skills, and attitudes for students to pursue PR professions.</p> <p>G 8.1 Define a process, method to build relationships for an organization.</p> <p>G 8.2 Practice developing a specific relationship.</p>
Main objectives	<p>G 1 Explain and make use of principles of marketing, introduction to Digital Marketing to build online advertising campaigns. (PLO 1.2.3)</p> <p>G 2 Understand and apply web and mobile tools to develop online marketing campaigns. (PLO 1.3.6)</p> <p>G 3 List and demonstrate the ways to research markets, identify market needs, and point out target customers in order to develop advertising and communications plans. (PLO 1.3.1)</p> <p>G 4 Select different tools for different phases. (PLO 4.3.3)</p>



(Table 6 to be continued)

LOs	G 1.1 Understand and present the fundamental concepts in Digital Marketing. G 1.2 Explain the roles and importance of Digital Marketing to publicize brands, products of companies. G 1.3 Demonstrate a Paid-Owned-Earned Model in Digital Marketing. G 2.1 Recognize the goals, roles of Social Media tools (Marketing and interacting with online users through social medias). G 2.2. List the forms of social medias (blog and video) and how they operate. G 2.3 Define goals, roles of Email Marketing tools (Marketing to the users through email systems). G 2.4 Present the usages of Email Marketing efficiently. G 2.5 Explain some measurement criterion for Email marketing campaigns. G 2.6 Recognize the goals, roles of Mobile Marketing tools and benefits for companies. G 2.7 Present the ways to develop an efficient Mobile Marketing campaign. G 2.8 Recognize the goals and roles of SEO and SEM. G 2.9 Understand and illustrate the differences between long term SEO and short term SEM, then applying them to optimize efficiency and costs for companies. G 2.10 Recognize the goals and roles of Content Marketing. G 2.11 Present the forms of content marketing, common content trends and how to operate content marketing. G 2.12 Recognize the goals and roles of online PR. G 2.13 Outline main online PR channels. G 2.14 Recognize the goals, roles of tools designing homepages and landing pages for marketing campaigns. G 2.15 Find the usages of Digital Marketing in E-commerce. G 3.1 Interpret marketing concepts of target customers, customer behaviors to utilize in building Digital Marketing plans. G 3.2 Explain the ways to implement a campaign basically in which employees make use of Digital Marketing channel for companies. G 4.1 Select Digital Marketing tools suitable for a specific field/business.
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Before implementing two introductory courses, we also provide the Training Workshop of Instructional Techniques. These techniques include: Demonstration, guide learning, student learning, group work, role-play, simulations, games, case studies, independent practice, and reflection. With active learning methods, our instructors can help students make connections among key concepts and facilitate the application of this knowledge to new settings.

### Conclusion

With the training orientation “well-learn, well-work” for the associate degree programs, FPT University surveys and gets feedback from industries on program LOs, focuses on developing the integrated curricula as well designing learning materials, specifically two introductory course for PRs and E-commerce approaching to CDIO. These will help students not only have more experience during the period of studying at school, but also are confident in keeping up with the real working environment after they graduate. Specifically, students can qualify for required knowledge, skills, and attitude in the field of PR and E-commerce.

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## Appendix

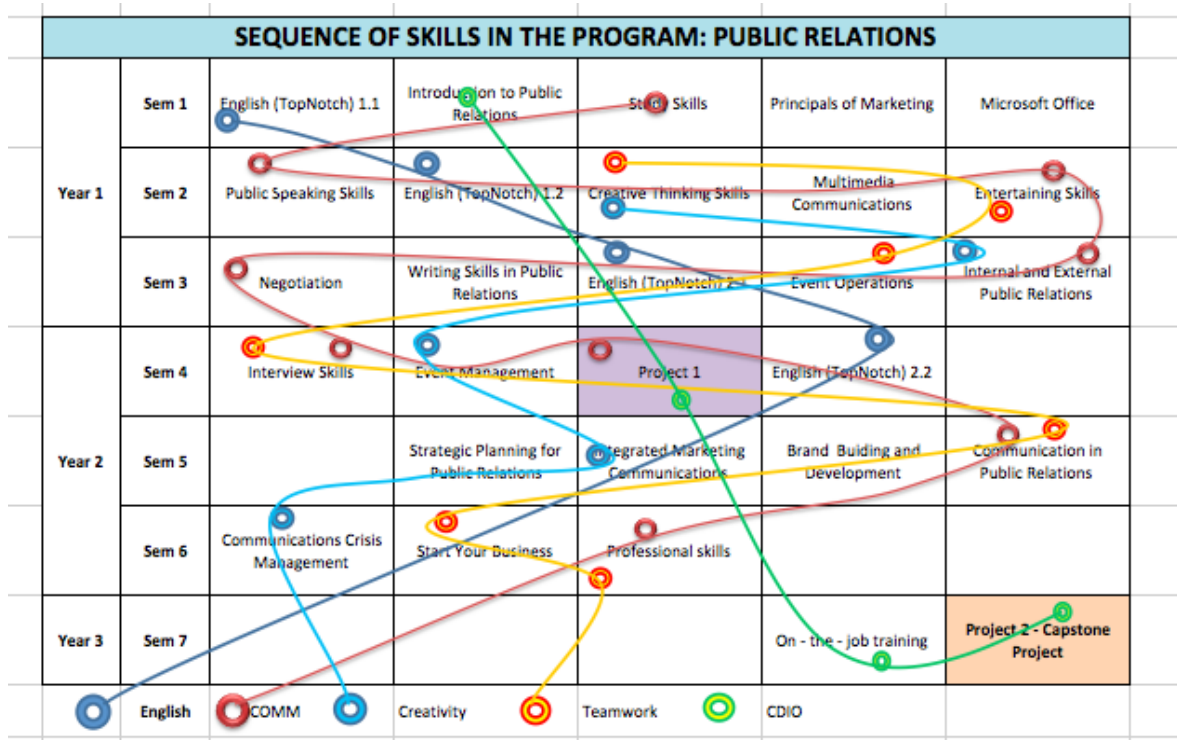


Figure A1. An example of integrated curriculum (PRs).

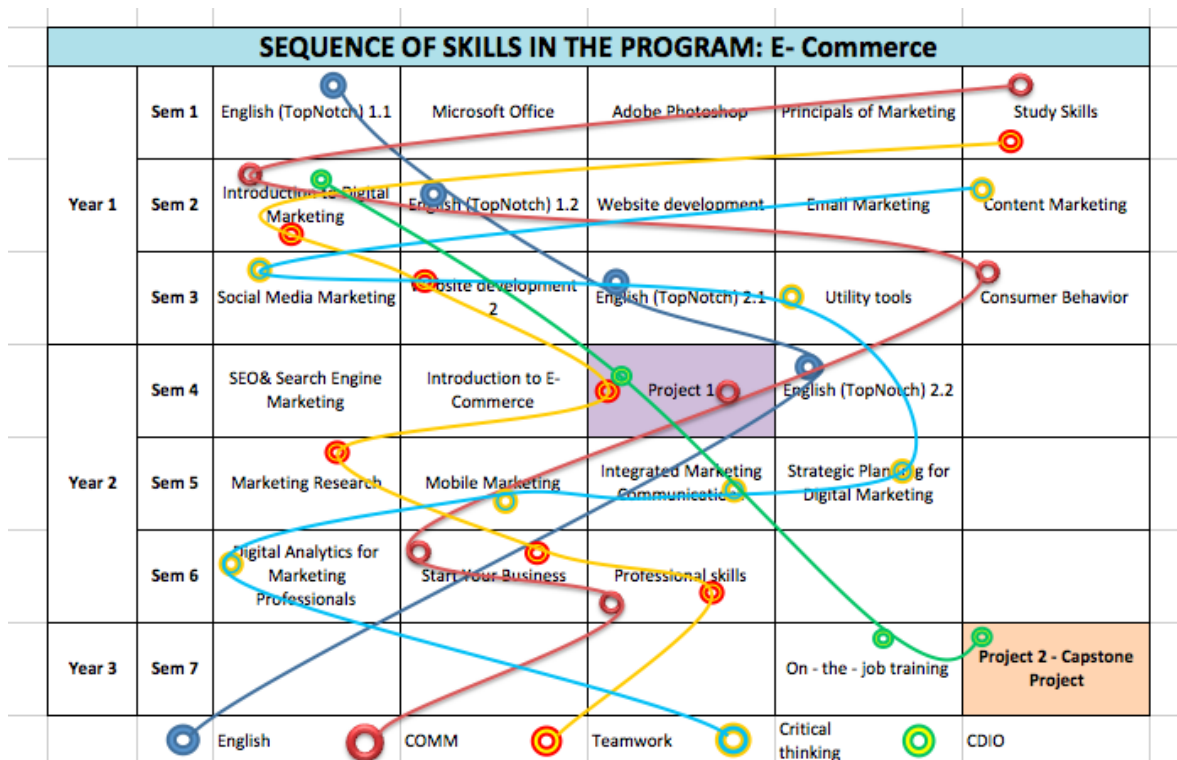


Figure A2. An example of integrated curriculum (E-commerce).