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**Student Manual**

**COOPERATIVE EDUCATION COURSE 06016281**

**Bachelor of Science Program in Information Technology**

**Faculty of Information Technology**

**King Mongkut’s Institute of Technology Ladkrabang**

**Introduction**

This document is a student manual for the cooperative education course in the Bachelor of Science program in information technology, Faculty of Information Technology, King Mongkut’s Institute of Technology. It informs students of the steps to be taken in their training, the time schedule for the training, and the report writing as well as the rules about report submission.

We hope that this manual will be helpful to students.

Office of Registration and Assessment

Faculty of Information Technology

November 2016

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Sample cooperative education training report 16-31

**Explanation of cooperative education report writing**

Cooperative education report (Co-op Report) is an academic document about research or project outcomes and also a training report of cooperative education in which students were assigned to an establishment. It was written by student during his or her time of training at the establishment, overseen by a job supervisor. Students should also seek advice from a job supervisor to select a report topic that is proper, of high quality, and in harmony with the requirements and benefits of the establishment. Moreover, the topic should be of keen interest to the student and directly relevant to the knowledge and skill taught in the course. Each student must write his or her own cooperative education report. Below are some sample report topics:

1. Outcomes of student’s research or training project
2. Framework of the training or finished item that the student has produced
3. Progress report on assigned task
4. Interesting academic article relevant to the course and approved by both his or her cooperative education advisor and a job supervisor
5. Summary of some useful data or certain statistics relevant to the course and reflecting the course content
6. Analysis and evaluation of some data.

After the report topic was selected and approved by a job supervisor, the student must write an outline of the training report, While strictly following the outline proposed in the report outline notification form previously submitted to the cooperative education project, and submit the outline to his or her cooperative education advisor within the 4th week of training.

A good cooperative education report needs to be clear, complete, and concise. It should be composed of the following sections:

1. **Introduction**: an early section of the report introducing the report topic before accessing the body of the report, making it easy to understand the details of other sections in the report. The introduction section consists of the following components:

* Outer cover
* Inner cover
* Cover letter
* Acknowledgment
* English abstract
* Report content
* Content of images
* Content of Table

**2) Body**: the body of the report is about the details of training at the establishment. It is the most important part of a report that student needs to write. These details are stated in the following:

**2.1 Section 1,** Introduction: the content of this section is related directly to the details of the establishment and the training task assigned to the student, such as the following:

* + 1. The name and location of the establishment
    2. The product or service that the establishment provides
    3. The hierarchy and operations of the administration
    4. The student’s position at the establishment and his or her duty and responsibility
    5. A job supervisor and his or her position at the establishment
    6. The period of training
    7. The objective or goal of the cooperative education training project; the student should seek advice from a job supervisor about his or her training goals and outcomes on the assigned task.

**2.2 Section 2, Details of the assigned task:** this section describes the nature of the assigned task and its operational steps. The student must explain clearly and in detail about operational steps of the task that he or she is assigned to, together with illustrations, diagrams, tables, and other related, necessary forms. In the case that the assigned task involves mathematical calculations, the student must clearly show that the principles used for the calculations are valid. If his or her training project or duty involves working in a laboratory, he or she must report details of laboratory equipment. Moreover, if the student’s task is part of the establishment’s project, the student must state clearly the scope of his or her involvement in the project.

**2.3 Section 3, Conclusion:** this section summarizes the data for analysis. The data must be analyzed based on related theories or principles. This section should also include suggestions and guidelines for resolving an encountered issue or error. The focus should be on advantageous future uses. Besides those, the section must include a summary of the training outcomes at the establishment, of the assigned task, and of the benefits that the student has accrued from the training at the establishment. The summary may be divided into topics such as,

* Theories and principles
* Actual practice
* Social aspects of the training.

**2.4 Section 4, Issues and suggestions:** this section describes issues that the establishment or the university or the student himself or herself were encountering and suggestions or solutions to those issues. The student can write the report in the form of a research article. The sections or topics to be included in the article are the following:

**Section 1:**

* Introduction and background
* Research objectives
* Scope of the research
* Expected benefits

**Section 2:** Concepts, theories, and related research works

**Section 3:** Methodology

**Section 4:** Research outcomes

**Section 5:** Conclusion

**References**

**Appendix.**

**3) Supplementary or additional information for making the report complete**:

* References
* Appendix (if applicable)

**4) Print format**

1) Single-sided printing on 80-gram, A4, unruled papers

2) Using an Angsana New font in black throughout the report. Other details include the following

2.1 The size of the font for each ‘Section’ heading is 20; the heading should be

in bold typeface and center-aligned

2.2 The font size of the topic headings (under a section) should be 24. The topic headings should be in bold typeface and center-aligned

2.3 The font size of the topics (under a section) is 18; the typeface is bold

2.4 The font size of the sub-topics (under a section) is 16; the typeface is bold

2.5 The font size of the body of a section is 16 throughout the report

3) The spacing of lines in the report should be consistent throughout the report

4) The format of page numbering is an Arabic numeral at the upper right hand corner of from the first page on (no page number on the first page)

1. Mathematical equations are expressed in a Times New Roman font.
2. The margins from the edged of a page are as follows:
   1. The top margin is 1 inch
   2. The right margin is 1 inch
   3. The bottom margin is 1 inch and
   4. The left margin is 1.5 inches.

1"

1"

1"

1.5"

**5) Complete report**

**5.1 Components of a report and their sequential order in the report**

1) Outer cover: Use the same white paper for the cover as those for the body of the report. Type on it the title of the report, the student name, the advisor name, the student ID, and the title of the course (do not include the title of the advisor). The size of the font should be 20, and it should be in bold. The text in the bottom part, starting from “This report …” should be 18 in size and also in bold. An example is shown in the appendix of this manual.

2) Inner cover (in English): Use all capital letters with a size 20, bold font. The text in the bottom part, starting from “A PROJECT SUBMITTED IN PARTIAL...” should be 18 in size and also in bold.

3) Cover letter: Use a regular, size-16 font.

4) Acknowledgments: The word ‘Acknowledgments’ should be in size-24 font and in bold.

5) Report approval form: Use a size-16, bold font for the topic, the title of the cooperative education report, the authors, the faculty, and the course.

6) Abstract in Thai: The abstract must include the title of the project, the names of the student and his or her advisor, the student’s educational level and years attending the university, the academic year. An example is shown in the appendix of this manual (the word ‘Abstract’ is to be typed in size-20 font and in bold).

7) Abstract in English: The abstract follows the same format as the abstract in Thai. An example is shown in the appendix of this manual (the word ‘Abstract’ is to be typed in size-20 font and in bold).

8) Content: The Content section must show the name of every section and the number of the first page of the section. The word ‘Content’ is center-aligned in the page and is in size-24 font and in bold. If the Content section continues to a second page, a phrase ‘Content (continued)’ is used instead.

9) List of figures/tables: Such a list may or may not be included in the report, as appropriate. If it is included, it is on the page immediately following the ‘Content’ page(s). Its format is the same as that of the Content section.

10) Body: The body of the report is composed of (1) an Introduction section, (2) Details of the training, (3) Conclusion of the training outcomes, and (4) Issues and suggestions.

11) Bibliography: This section contains a list of reference papers.

12) Appendix: This section may contain either supplementary information clarifying the text in the main body or some detailed data referred to in the body of the report (the section may or may not be include in the report, as appropriate).

13) About the author: This section provides some information about the author, including his or her title (Mr./Ms.), his or her date and place of birth, educational background, and work history. The section name, ‘About the author’, is typed in size-24 font and in bold.

**5.2 Page numbering requirements**

1) The Abstract to the Content pages are numbered in Roman numerals (I, II, III, IV, …), one inch above the bottom edge of the page and center-aligned at the middle of the page.

2) The pages of the body of the report (from Section 1 onwards) are numbered in Arabic numerals (1, 2, 3, 4, …), 0.5 inch below the top edge of the page and 1 inch to the left of the right edge of the page. The first page of each section is not numbered, but also counted as a page.

**5.3 Table insertion requirements**

Tables related to the text of a section should be appropriately inserted into the section.Type the table number, ‘Table x’ (in bold) immediately above the table and at the left margin of the page, followed by the legend of the table (regularl font). If the legend is more than one line long, the beginning of the second and latter lines should be left-justified to the beginning of the first line. There should be no additional empty line between the legend of the table and the table itself, however there should be an empty line under the table, before the next line of text. If a table does not fit in one page, type the rest of it on the next page, with the phrase ‘Table x (continued)’ on the top of the page, followed by the legend of the table.

**5.4 Table numbering**

The table number of tables in each section begins with the section number, followed by a dot, then its order of appearance in the section. For example, in Section 1, there can be Table 1.1 then Table 1.2, while in Section 2, there can be Table 2.1 then Table 2.2.

**5.5 Figure format**

A figure should be separated from the last line of the text above it by an empty line. The figure should be placed at the middle of the page. The word ‘Fig. x’ in bold should be placed under the figure, center-aligned, followed by the legend of the figure**.** If the legend is more than one line long, the beginning of the second and latter lines should be left-justified to the beginning of the first line. There should be an empty line under the figure, before the next line of text. The figure number of figures in each section begins with the section number, followed by a dot, then its order of appearance in the section. For example, in Section 1, there can be Fig. 1.1 then Fig. 1.2, while in Section 2, there can be Fig. 2.1 then Fig. 2.2.

**5.6 Outer cover format**

- Use a size-20, bold font for the title of the report (both in Thai and English)

- No title before the student name; the student ID follows the name; both are typed in a size-20, bold font.

- The name of the advisor is typed in a size-20, bold font

- The end part of the report (the part starting with “this report is part of the project …” ) is typed in a size-18, bold font.

**5.7 Punctuation format**

- Type two spaces after a period

- Type one space after a comma

- Type one space after a semicolon

- Type one space after a colon

- Type one space after quotation marks (“ ”).

**5.8 Bibliography**

A bibliography indicates how comprehensive, contemporary, and credible a research article is. In general, a bibliography is a collection of all printed documents, audio-visual media, and electronic media that the author had investigated, even if the author has not copied any statement from the medium. A reference is a document or a said medium in which some statements are copied or quoted in the research article. A bibliography is an essential part of a printed medium, especially for textbooks or coursebooks, because it contains a list of documents and books as well as interviews that the author uses as information sources. The bibliography format is as follows:

1) The word “bibliography” is center-aligned and in size-24, bold font

2) The list of document titles and authors is typed in size-16, bold font

3) In reporting the publisher, the year that the document was published, and the publisher location, type in the year after the name of the author

4) The item numbers (listed in the order that each item is referred to in the article) are at the left margin of the sheet, like [1]

5) If there is a second line for the item, type in 7 spaces then start the second line in the position of the 8th letter after the item number.

**Bibliography content**

1. **Book**

***Format***

Author//book title//number of printing (if applicable)//city where it was published//://publisher//year published

Or

Editor//Volume editor (who collected the articles in the volume)//book title//number of printing (if applicable)//city where it was published//://publisher//year published.

***Examples***

[1] เสถียร วิชัยลักษณ์, สืบวงศ์ วิชัยลักษณ์. **พระราชบัญญัติลิขสิทธิ์** พ.ศ 2537. กรุงเทพมหานคร: โรงพิมพ์นีติเวช. 2538

[2] Richard E. Blahut. **Theory and Practice of Error Control Codes.** Reading : Addition-Wesley Publishing Company, Inc.1984

1. **Article from journal, book, or meeting report**

***Format***

Author //“title of article”//**title of journal**//year//volume//date published//page//page number.

***Examples***

[3] Choomchuay S. “On the Implementation of Finite Field Operations” **Ladkrabang Engineering Journal,** vol. ll, no. l, June 1984.pp.7-17.

[4] โอฬาร วงศ์วิรัตน์. “ระบบการเรียนการสอนทางไกลแบบสื่อสารประสมผ่านดาวเทียม” **สารสนเทศลาดกระบัง,** ปีที่ 3, ฉบับที่ 1, มกราคม 2541. หน้า 31-41

1. **Thesis**

***Format***

Author//“**title of thesis**”//Degree (written in full)//year published.

***Examples***

[5] ทรงพลใหม่สาลี. “**การปรับปรุงประสิทธิภาพการจัดการวางและการเชื่อมโยงของเซลเบส.**” วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต สาขาวิชาการคอมพิวเตอร์และ

เทคโนโลยีสารสนเทศ บัณฑิตวิทยาลัย,สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง. 2540

[6] Choomchuay S. **“Algorithm and Architecture for Reed-Solomon Decoding.”** Ph.D. Thesis Of University of London and the Diploma of Membership of the Imperial College. 1993

1. **Patenสิทธิบัตร**

***Format***

Patent holder//**invention**//country issuing the patent//patent number//patent registration date.

***Examples***

[7] Kandar A.D. **“Method and Apparatus for Constraining the Compaction of Components of a Circuit Layout.”** U.S patent no. 5636132, June 1997

1. **Audio-visual material and medium**

***Format***

Producer//**“title of material”**//[type of medium]//production location//://production year.

***Examples***

[8] RCA Records. **“Test Compact Disc; Extensive Test Audio Equipment.”** [Compact Disc]. Germany: RCA Ltd. 1984.

[9] Alan W.B. Compiler. **“Using the Oscilloscope.”** [Slide]. London : The Slide Center. 1984

1. **Various electronic media**

***Format***

Author//**“title of medium”**//[CD-ROM]//production location//://producer//year first distributed.

Or

Author//**“title of medium”**//[Online].//accessible from/://access method and location of information.//year first distributed (or explored)

***Examples***

[10] Danial H., Anghileri. **“Escondary Mathematics and Special Education Needs.”** [CD-ROM]. New York : Casell.1995

[11] Noam E.M. **“Telecommunication Policy Issue for the Next Century.”**[Online].Available: [gopher://198.80.36.../global/telcom. 1994](gopher://198.80.36.../global/telcom.%201994).

**Insertion of ordered reference numbers in the body of text**

*Example*

|  |
| --- |
| เนื่องจากในการถอดรหัสในเชิงความถี่นี้จะต้องใช้การแปลงและแปลงกลับเป็นส่วนสำคัญ [1] นอกเหนือไปจากการคำนวณอื่น ๆ การแปลงและการแปลงกลับจะต้องใช้การคำนวณเป็นจำนวนมากจึงมีการนำวิธีการตัวประกอบปฐม (Prime factor Algorithm) มาใช้เพื่อลดจำนวนการคำนวณลงโดยใช้ร่วมกับวิธีการแปลงข้อมูลจำนวนน้อย ๆ (Short Length Algorithm) [2] ในแง่ของการนำวิธีการดังกล่าวไปใช้งานจริงซึ่งจะต้องพิจารณา...  Alternatively, Berlekamp’s technique can also generate both polynomials [2]. However, when erasures are involved, the procedure becomes more intricate. Blahut [3] has shown the way to obtain the error-erasure locator polynomial when erasures are considered. This is done simply by initializing the error locator polynomial with the erasure locator polynomial. He also showed that the error evaluator polynomial and the derivative of the error locator polynomial can be iterated within those 2*t* iterations [4]. |

**Appendix**

**An example of cooperative education report writing**

**Cooperative education training report** (Angsana New 20 Bold)

**Title**…………………………………….(Angsana New 24 Bold)

**Trained at ………...……….(**Angsana New 20 Bold**)**

**by**

**Mr./Ms............................** (Angsana New 20 Bold)

**Student ID.............................................**

**This report is part of a cooperative education course …….**(Angsana New 18 Bold)

**Major............................................... Faculty..............................................**

**Semester................Academic year................................**

**King Mongkut’s Institute of Technology Ladkrabang**

**(An example of the inner cover)**

**A cooperative education training report**

**.....................................................................**

**by**

**Mr./Ms........................................................................**

**Student ID..............................................**.

**Trained at.....................................................................**

**House number.....................Road..........................Sub-district...................................**

**District..................................Province...............................Postal code.................Telephone.............................Fax................................**

**Website: ………………………………………………………….**

Date.............................................................

An example of cooperative education training report submission form

Subject: Submission of a cooperative education training report

To:.................................................................................................. (the instructor’s name)

Cooperative education advisor in the field of.......................................................

I, Mr./Ms.,........................................................................................am a student in the...............................................................major, Faculty of.................................................., King Mongkut’s Institute of Technology Ladkrabang. I have completed a cooperative education training during the period from (date)....................(month)............................(year)....................to (date)...............(month)........................(year)................in the position of........................................................................................at the following establishment ..................................................... and have been assigned by a job supervisor to prepare a training report with the title of “.......................................................................................”.

Since the training has ended, I wish to submit my training report, attached to this submission form, to the cooperative education project and seek further advice.

Please consider this matter.

Respectfully yours,

(Mr./Ms...........................................................)

**Acknowledgments**

I, Mr./Ms.,.........................................................................................

was trained at (name of establishment)...............................................................................

from (date/month/year)...........................................................to (date/month/year).......................................................... .

I have gained a lot of valuable knowledge and skills from the training. This report was successfully prepared with the help and cooperation of the following people:

1. Mr./Ms.............................................................position...............................................;

2. Mr./Ms............................................................................................, Job supervisor;

3. Mr./Ms.............................................................position...............................................;

4. Mr./Ms.............................................................position...............................................;

5. Mr./Ms.............................................................position............................................... .

There are other helpful people, not mentioned here, who have suggested ways to successfully prepare this cooperative education training report. I wish to express my gratitude to every person who have shared information with me, familiarized me to a trainee life, and advised me in the preparation of this report until its completion.

Mr./Ms................................................................

Author of the report

Date…………….............................................

**Title of the cooperative education training report**.............................................................

An example of report approval form

**Author** ...........................................................................

**Faculty** ...........................................................................

**Major** ...........................................................................

.................................................................

(...............................................................)

Cooperative education advisor

.................................................................

(...............................................................)

Job supervisor

The Faculty of Information Technology, King Mongkut’s Institute of Technology Ladkrabang

approves of this cooperative education training report as an accomplishment of one of the requirements for completion of Bachelor’s of Science program in information technology.

Title of the report ...............................................

An example of ‘Abstract’ section

Student’s name ...............................................

Student ID ...............................................

Major ...............................................

Advisor ...............................................

Academic year ...............................................

**Abstract**

.......................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

**Content**

An example of ‘Content’ section

**Page**

Cover letter I

Report approval page II

Abstract III

Acknowledgments IV

Content V

List of tables VI

List of figures VII

Section

1 Introduction 1

2 Details of assigned tasks 12

3 Conclusion of training outcomes 20

4 Issues and suggestions 23

Bibliography 25

Appendix 26

**List of tables**

An example of list of tables

**Page**

**Table number**

1.........................................................................................................................................?

2.........................................................................................................................................?

3.........................................................................................................................................?

4.........................................................................................................................................?

5.........................................................................................................................................?

6.........................................................................................................................................?

7.........................................................................................................................................?

8.........................................................................................................................................?

9.........................................................................................................................................?

10.......................................................................................................................................?

**List of figures**

An example of list of figures

**Page**

**Figure number**

1.........................................................................................................................................?

2.........................................................................................................................................?

3.........................................................................................................................................?

4.........................................................................................................................................?

5.........................................................................................................................................?

6.........................................................................................................................................?

7.........................................................................................................................................?

8.........................................................................................................................................?

**Section 1**

Size-20, bold font

An example of ‘Introduction’ section

**Introduction**

Size-24, bold font

............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

**1.1 Training objectives**  *(size-18, bold font)*

1. to.................................................

2. to................................................

3. to...............................................

4. to................................................

5. to................................................

**1.2** Background information of the training establishment

- Name and location

- Type of business: production or service

- Administrative hierarchy and management

- Position and tasks that the student was assigned

- Name and position of a job supervisor

- Period of training

**Section 2**

**Details of assigned training tasks**

............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

**Position and responsibility on assigned tasks**

**Details of assigned training project**

**Details of assigned tasks**

**Steps of operation**

***(Related concepts, theories, and research works from literature review can be used to explain or support some details of the assigned tasks.)***

**Section 3**

**Conclusion**

...............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

- Expected training outcomes

- Benefits of the training:

Benefits to self

Benefits to the establishment

Benefits to the university

- SWOT analysis: analysis of strengths, weaknesses, opportunities, and threats ***(of the student himself or herself)***

- Impressive or extraordinary experience.

...................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

**Section 4**

**Issues and suggestions**

...........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

.

*Issues encountered during the cooperative education training, which can be categorized into issues of the establishment, of the university, and of the student himself or herself, and suggestions on ways to resolve those issues.*

**Bibliography**

An example of ‘bibliography’ section

[1] น้อม งามวิไล. **เคมีคลินิก** พ.ศ. 2540. พิมพ์ครั้งที่ 3. กรุงเทพฯ: โอเดียนสโตร์.

[2] มานิดา เสนีเศรษฐ, ชอบ อินทรประเสริฐ.. **มนุษย์สัมพันธ์ในองค์การ** พ.ศ. 2550. กรุงเทพฯ:

ไทยวัฒนาพาณิชย์.

[3] ขจิตรัตน์ ปูนพันธ์ฉาย. “โรคอยากสุขของคนไทย.” **หมอชาวบ้าน,**  ปีที่ 17, ฉบับที่ 258,

พฤศจิกายน 2539. หน้า 26-31.

[4] จุฑา แม่นกิจ. 2541. ไอศกรีม. [ออนไลน์]. http:://www.car.chula.ac.th/mis/mkdata/foof-96.

**Appendix**

An example of ‘Appendix’ section

- Records of outcomes of assigned tasks

- Records of student’s adjustment to the assigned tasks

- Photos of student’s activities in the assigned tasks

- Photos of the establishment

- Student’s educational history

- time card