

FOR INTERNAL CIRCULATION

WRITING GUIDELINES

INTERNSHIP REPORT



By
Civil Engineering Lecturer Team

CIVIL ENGINEERING PROGRAM STUDY
FACULTY OF ENGINEERING
UNIVERSITAS MUHAMMADIYAH SURAKARTA
2018

FOREWORD



Assalamu'alaikum wr. wb.

The book entitled 'Manuscript Writing Guidelines: Internship Reports' is a refinement of the writing manuals that have been previously published in the Civil Engineering Study Program of FT-UMS with the title 'Guidelines for Internship' year 2000.

In accordance with the development of science, curriculum and procedures for writing scientific manuscripts in tertiary institutions, the Civil Engineering Study Program of FT-UMS feels the need to review and refine the content of the writing manual that has been in effect since 2000, by holding a Workshop on Final Project and Internship Procedures on September 14th 2016. With the implementation of this workshop, Civil Engineering Lecturer Council of FT-UMS was able to produce a manuscript writing guidebook that will be effective in 2017.

Hopefully this guidebook is useful, especially in the Civil Engineering Study Program, so that it is used as a reference for guidelines of writing for supervisors, especially for students in preparing Internship Reports. In addition, I hope that with this book the students study period can be shortened. Amiin, ya robbal'alamin.

Wassalamu'alaikum Wr. Wb.

Surakarta, February 2018
Head of Civil Engineering Study Program

Mochamad Solikin, ST, MT, Ph.D.
NIK: 792

TABLE OF CONTENTS

	Page page
FOREWORD	ii
LIST OF FIGURES	v
LIST OF APPENDIXS.....	vi
CHAPTER I REGULATION OF INTERNSHIP.....	1
A. General Administration Requirements for Internship	1
B. Requirements for Regular Internship	1
C. Requirements for Special Program Internship	1
1. Internship on semester holiday	1
2. Internship together with Final Project	2
D. Project Requirements for Internship	2
1. Building	2
2. Bridge	2
3. Road	2
4. Hydro	2
5. Geotechnical	2
E. Flowchart for Internship	3
F. Assessment	4
CHAPTER II GUIDELINES FOR WRITING.....	5
A. Material and Size	5
1. Manuscript	5
2. Cover	5
B. Typing.....	5
1. Font	5

2. Numbers and units	5
3. Line spacing	5
4. Borders	6
5. Space filling.....	6
6. New alenia	6
7. Beginning of the sentence	6
8. Title of chapter, sub chapter, sub-sub chapter and others	6
9. Details	7
10. Layout	7
C. Numbering	7
1. Pages	7
2. Figure	8
3. Table	8
4. Equations	8
D. Picture and Table	8
1. Pictures	8
2. Table	9
E. Language	9
1. Language used	9
2. Sentence form	9
3. Terms	9
4. Important matters	10
F. Name	10
1. Name of the author referred to in the description	11
2. Name of author in bibliography	11
3. The author's name is more than one syllable	11
4. Author's name with a connecting line	11
5. Names with abbreviations.....	11
6. Bachelor Degree	11
G. New Terms and Quotations	11
H. Bibliography and Appendix	12

CHAPTER III	INTERNSHIP REPORT	13
A.	Content and Systematics of the Report	13
B.	Format and Systematics of Writing	14
1.	The beginning	14
2.	Main part	16
3.	End part	16
BIBLIOGRAPHY	17
APPENDIX		

LIST OF FIGURES

	Page
Figure 1. Flowchart of Internship.....	ii

LIST OF APPENDIX

	Page
Appendix 1. Example of figure position for guidelines	L-1
Appendix 2. Example of table for guidelines	L-2
Appendix 3. Example of cover for report	L-3
Appendix 4. Example of report validation	L-4
Appendix 5. Example of table of content for report	L-5

CHAPTER I

REGULATION OF INTERNSHIP

A. General Administration Requirements for Internship

The requirements that must be followed for all students applying for internship include:

1. Uncompleted assignments and / or practicum subjects are a maximum of 2 (two) courses
2. internship courses must be listed in the KRS in the active semester
3. Gathering the necessary evidence includes:
 - a) Cover letter for internship from an academic supervisor
 - b) The application form for internship is filled in completely
 - c) The registration form for internship is filled in completely and emailed to pkj.sipil@ums.ac.id
 - d) Project data form
 - e) Photocopy of active semester student cards
 - f) KRS for active semester students which includes internship courses and is signed by the academic supervisor
 - g) Form list of assignments and practicum courses that have been completed signed by an academic supervisor
 - h) The latest development of student studies from the Biro Administrasi dan Akademik (BAA) UMS
4. The internship report must have obtained approval from the field supervisor before being consulted with the supervisor.
5. The completion time for internship and the report is for 6 (six) months from the start of the student carrying out internship with an extension of 2 (two) months.
6. One project location in the Solo Raya area (Solo City, Wonogiri Regency, Sukoharjo Regency, Karanganyar Regency, Sragen Regency, Purwodadi Regency, Boyolali Regency, and Klaten Regency) for one internship student
7. Students who carry out internship outside Solo Raya can form groups of 4 people in one project location.

B. Requirements for Regular Internship

Students who take regular internship are given the following additional requirements:

1. Students have taken courses with a greater value of E totaling 115 credits with a minimum GPA of 2.00
2. Have paid the active semester tuition fees

C. Requirements for Special Program Internship

Special program internship includes: semester holiday internship, internship that is taken together with the final project.

1. Semester holiday internship

Additional requirements for registering semester break internship include:

- a. Students have taken semester VI of a subject with a greater value of E (0.0) with a minimum score of 92 credits with a GPA of 2.75 at the end of the even semester.
- b. internship subjects are listed in the active semester
- c. Task and practicum subjects that have not been completed are a maximum of 2 (one)

2. internship together with the final project

Additional requirements for registering internship together with the final project include:

- a. Students have taken courses with a greater value of E (0.0) with a minimum of 138 credits.
- b. The cumulative performance index is 3.00
- c. Get a letter of approval from the supervisor to become a internship supervisor and final project

D. Project Requirements for internship

1. Building

Requirements for building projects are as follows:

- a. Minimum area of 1000 m²
- b. Minimum building 2 floors, except for factory buildings

2. Bridge

Requirements for a bridge project include: a span of 12 m and a width of 6 m

3. Road

Requirements for road projects include:

- a. Road improvement package with a minimum cost of 3 billion, namely overlay replacement pavement from flexible Becomes rigid
- b. New path
- c. Fly over or underpass
- d. Railway project
- e. Airport
- f. Other projects approved by the manager / supervisor

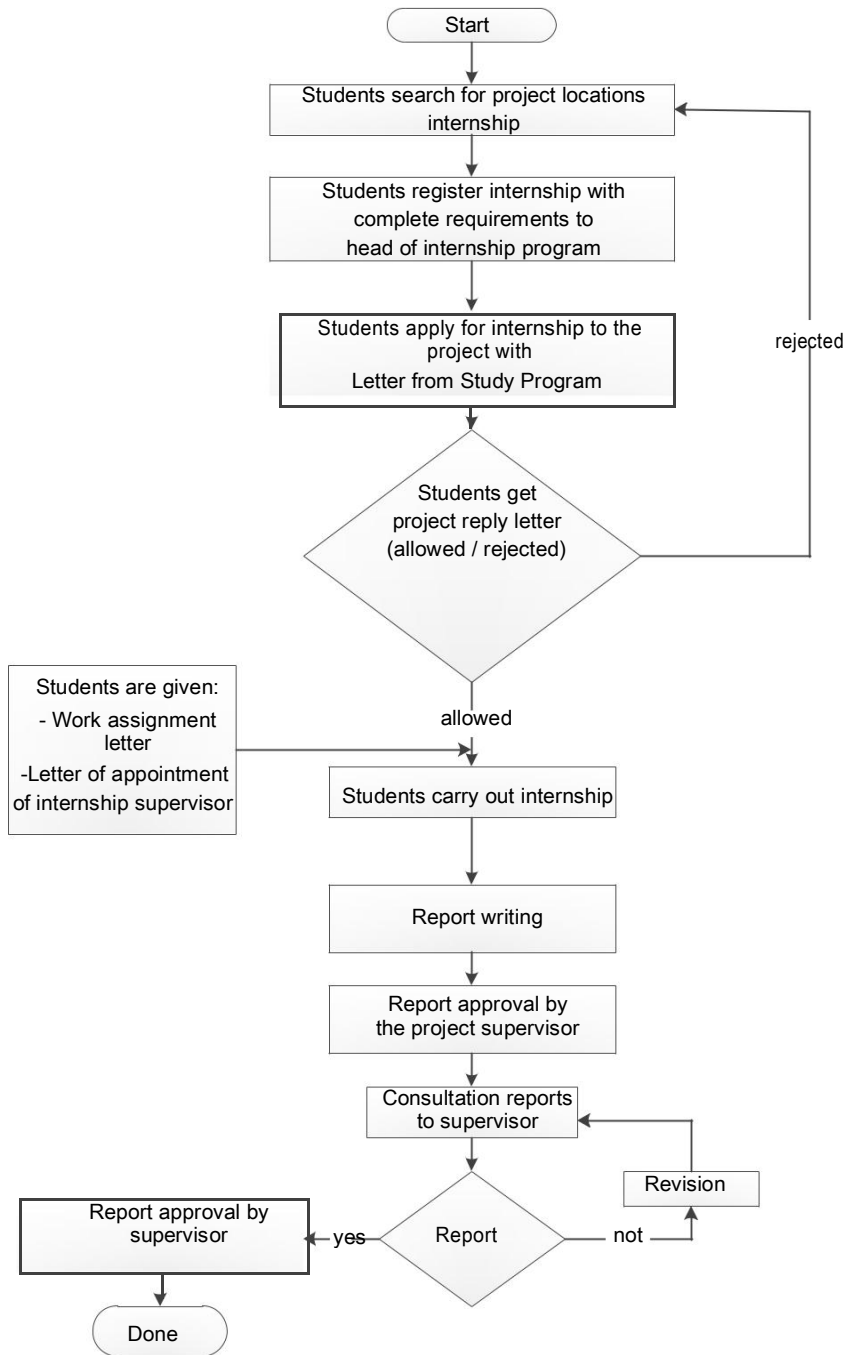
4. Hydro

- a. Minimum processing time is 4 months
- b. Repair of weirs or construction of new weirs
- c. Dam repair or construction of new bending
- d. Seaports
- e. WWTP
- f. Mains repair or construction
- g. Corner
- h. Cross building (siphon, aquaduct)
- i. The jetty project
- j. Breakwater project
- k. Sea wall

5. Geotechnical

- a. Minimum working time is 4 months. Soil
- b. repair
- c. Repair or construction of retaining walls

E. Flowchart for Internship



F. Assessment

Assessment based on provisions that applies in University Muhammadiyah Surakarta as follows:

A = 77 - 100

AB = 70 - 76

B = 63 - 69

BC = 56 - 62

C = 50 - 55

D = 35 - 49

E = 0 - 34

The assessment criteria are further regulated as follows:

1. Reports completed within the extension period (2 months) will get a maximum value of B
2. If the extension period for completion of the report has been exceeded, the supervisor has the right to give a maximum score of C.

CHAPTER II

WRITING PROCEDURES

The procedures for writing include: materials and sizes, typing, numbering, tables and pictures as well as writing names.

A. Material and Size

Materials and measurements include : manuscript and cover.

1. Manuscript

Manuscripts are made on A4 quarto HVS paper at least 70 gsm and not duplex.

2. Cover

The cover is made of blue paper (for the Internship Report / KP) and white (for the Final Project Report / TA) and reinforced with cardboard covered with plastic (model *hardcover*). The writing printed on the cover is made in white silver color for KP, yellow gold for TA, while the title page uses white paper and the writing is black.

B. Typing

Typing is presented: type letters, numbers and units, line spacing, borders, space filling, new paragraphs, beginning of sentences, chapter and sub-chapter titles, downward breakdown, and symmetrical layout.

1. Font

The fonts used in KP and TA are:

- a) Manuscript typed by letters *Time New Roman 12*, and for the entire script the same font must be used. Use of italics or squares is not permitted.
- b) Italics are only used to write foreign words / terms.
- c) Notation or signs that cannot be typed, must be written neatly in black ink.

2. Numbers and units

The procedure for writing numbers and units is as follows:

- a) Numbers are typed with numbers, except at the beginning of the sentence, for example:
Ten types of materials and 5 types of equipment.
- b) Decimal numbers are marked with a comma, not with a period, for example: egg weight
50,5 gr.
- c) Units are expressed by their official abbreviation with no dots behind them, for example
m, gr, kg, cal.

3. Line spacing

The distance between 2 lines is made of 1.5 spaces, except digest, direct quotation, description of the notation after the equation, table titles and image titles that are more than 1 line as well as bibliography, typed with 1 space down.

4. Borders

The boundaries of typing, viewed from the edge of the paper, are arranged as follows:

- a) Top : 4 cm.
- b) Bottom : 3 cm.
- c) Left : 4 cm.
- d) Right : 3 cm.

5. Space filling

The space contained in the manuscript page must be filled completely, starting from the top edge to the bottom edge, unless it starts with changing chapters. In addition, typing must be from the left edge to the right edge, and no space is wasted, unless it starts with a new paragraph, equations, pictures, sub-chapters, or special things.

6. New Alenia

Alenia just starts at the 7th type of the left border.

7. The beginning of the sentence

The number, symbol, or chemical formula that starts a sentence should be spelled, for example: One zak of cement portland weighs 40 kg.

8. Title of chapter, sub chapter, sub chapter child, and others

Writing chapter titles, sub-chapters, and others in bold with the following rules:

- a) Chapter titles must be written in all capital letters and arranged symmetrically, 4 cm from the top edge without dot at the end of the sentence.
- b) Sub-headings are written in the middle, all words start with a capital letter, except for conjunctions and prepositions, without dot at the end of the sentence. The first sentence after the chapter begins with a new paragraph.
- c) Sub-sub-headings are typed starting from the left border, only the first letter is capitalized, without dot at the end of the sentence. The first sentence after the sub-chapter child begins with a new paragraph.
- d) Additional sub-sub-headings are written from 7th typing, written in italics, only the first letter is in uppercase letters, and ends with a dot. The first sentence that follows is then continuously typed backwards in a line with sub-sub-headings.

9. Details down

If in the writing of the script there are details that must be arranged downward (the first detail), use the serial number with Arabic numerals and enclosed in brackets and dots, and start from the left edge. Using a connecting line (-), arrows (→), stars (*), etc. that are placed in front of the details are not permitted. If this first detail needs description, then the writing of the description starts with the left border under the first letter of the detail (after the closing brackets and period).

If this first detail is broken down further (second detail), use alphabetical order of letters (alphabet) and enclosed in brackets and dots, starting from the left border below the first letter of the first detail. If the second detail has more details (the third detail), use serial numbers with Arabic numerals and marked with open and close brackets and periods, and starting from the border under the first letter of the second detail, and so on.

Example: The main ingredient of concrete consists of cement portland, aggregate and water, with the following explanation:

1). Cement portland

Cement portland there are several types as follows:

- a). Cement portland type I.
- b). Cement portland type II.
- c). Cement portland types and so on).

2). Aggregate

According to the size of the granules, the aggregate is divided into 2 types, namely:

a). Fine aggregate

This aggregate is sand with a maximum diameter ...

b). Coarse aggregate

The type of coarse aggregate used as a concrete mixture can be:

- (1). Gravel taken directly from the river.
- (2). Split / crushed stone is obtained from stones that are broken with a hammer manually, or by tool *stone crusher*.

3). (etc).

10. The layout is symmetrical

The display of images, tables, chapter titles and sub-chapters is written symmetrically against the left and right edges of typing.

C. Numbering

Numbering in this section includes page numbering, tables, figures, and equations.

1. Pages

Page numbering arrangement:

- 1). The beginning of the report, starting from the Title Page to the Digest, is given page numbers in small Roman numerals (i, ii, iii, iv), and is written in the bottom center with a space of 1, 5 cm from the bottom edge.

- 2). The main and final sections, starting from the Introduction (Chapter I) to the last page, use Arabic numbers as page numbers (1,2,3,).
- 3). The page number in the Chapter Title is placed at the bottom right of the page, while the other page numbers are written on the top right.
- 4). The page numbers in the main and final sections are typed at a distance of 3 cm from the right edge and 1.5 cm from the bottom or top edge.
- 5). Appendices are page numbered with L-1, L-2, L-3, and so on with a distance of 3 cm from the right edge and 1.5 cm from the top edge.

2. Image

Images are numbered with Roman and Arabic numerals. Example: Figure II-2, means that the image is in Chapter II with sequence number 2.

3. Tables

Tables are numbered with Roman and Arabic numerals. Example: Table V-4, means that the table is written in Chapter V with the sequence number 4.

4. Equation

Serial numbers of equations in the form of mathematical formulas, chemical reactions, etc. are written in Roman and Arabic numerals in parentheses and placed near the right margin.

$$\sigma = \frac{M \cdot y}{I} \dots\dots\dots(\text{III-2})$$



D. Figures and Tables

1. Figures

Writing pictures follows the following rules:

- 1). Charts, graphs, maps, and photos are all called (undifferentiated) images.

- 2). The picture number followed by the title is placed symmetrically under the image without ending in a period.
- 3). Images must not be cut off.
- 4). Captions for pictures should be written in the vacant places in the image and not on other pages.
- 5). If the image is painted stretched along the height of the paper, the top of the image should be placed on the left side of the paper.
- 6). The image is positioned so that it is symmetrical.

An example of a guide can be seen in Figure I.1 in Appendix I.1.

2. Tables

Rules in the table:

- 1). The table number followed by the title is placed symmetrically or just above the table, without ending with a period.
- 2). Tables should not be chopped off, unless they are long, so that it is impossible to type them on one page. On the next page of the table, the table number and follow-up words are listed, without a title.
- 3). Columns are named and maintained so that the separation between the columns is sufficiently clear.
- 4). If the table is wider than the width of the paper, so you have to make the paper lengthwise, then the table part should be placed on the left side of the paper. Above and below the table, borders are
- 5). attached, so that the table is separate from the main description in the paper.

Example of guidance can be seen in Table I.1 in Appendix I.2.

E. Language

1. The language used

The language used is standard Indonesian (there are subjects and predicates, and to make it more perfect, objects and information are added). The writing guidelines follow EYD (Enhanced Spelling) and KBBI (Big Indonesian Dictionary).

2. The form of the sentence

Sentences should not display the first person and the second person (I, I, we, we, you), but made in a passive form. In the presentation of thanks to the foreword, the word 'I' is replaced by 'author' or 'composer'.

3. Term

The terms used are Indonesian terms or those that have been Indonesianized. If forced to use a foreign term, it must be printed in italics

4. Important matters

Important things to note:

- 1). Conjunctions, such as 'so', and 'while', should not be used to start a sentence.
- 2). Prepositions, such as 'at', are often used inappropriately, for example, placed in front of the subject (breaking sentence structure).
- 3). The words 'where' and 'from' are often inappropriately used, and are treated exactly as words *where* and *of* in English. In Indonesian this form is not standardized and should not be used.
- 4). The prefixes 'to' and 'at' should be distinguished by prepositions 'to' and 'at'.
- 5). Punctuation must be used appropriately.

F. Writing of names

Writing this name includes the name of the author referred to in the description, the name in the bibliography, names with more than one syllable, names with a connecting line, names followed by abbreviations, and degree of scholarship.

1. Name of the author referred to in the description

Authors whose writings are referred to in the description are only mentioned their last name, and if there are more than 2 people, only the last name of the first author is included followed by et al or *et al*, example:

- 1). According to Calvin (1978)
- 2). Bagasse priority (Othmer and Ferstrom, 1943) yields

3). Gasoline can be made from methanol (Meisel et al., 1976) ...

There are 4 people writing in example 3), namely: Meisel, SL, Mc. Cullough, JP, Leckthaler, CH, and Weisz, PB

2. The author's name in the bibliography

In the bibliography, all authors must be listed by name, and not only the first author plus et al or *et al* only. Examples: Meisel, SL, McCullough, JP, Leckthaler, CH, and Weisz, PB, 1976

Not only: Meisel, SL et al or Meisel, SL *et al*.

3. The author's name is more than one syllable

If the author's name consists of 2 or more syllables, the method of writing is the last name followed by a comma, abbreviating the first name, middle name and so on, all of which are given a period, or the last name is followed by the first, middle name syllable, and so on.

Example:

- 1). Sultan Takdir Alisyahbana is written: Alisyahbana, ST
- 2). Donald Fitzgerald Othmer written: Othmer, DF

4. Author's name with a connecting line

If the author's name in the original source is written with a connecting line between the two syllables, then the two are considered as one unit. Example:

Sulastin-Sutrisno is written by Sulastin-Sutrisno.

5. Names with abbreviations

A name that is followed by an abbreviation, it is assumed that the abbreviation becomes one with the syllable in front of it.

Example:

- 1). Mawardi AI is written: Mawardi AI
- 2). William D. Ross Jr. written: Ross Jr., WD

6. Degree of degree

Undergraduate degrees should not be listed

G. New Terms and Quotes

1. New term

New terms that have never been standardized in Indonesian can be used as long as they are consistent. At first use it is necessary to give it in a foreign language (in brackets). If a lot of new terms are used, it is best to create a separate 'glossary'.

2. Quote

Citation is written in the original language, if it is more than 3 lines, it is typed with one space, and if it is less than 3 lines, one and a half spaces. Typed indented. Not translated, but may be written in accordance with the words of the author.

3. Arabic word

The Arabic word transliteration follows the Joint Decree SKB) of the Minister of Religion and the Minister of National Education of the Republic of Indonesia.

H. Bibliography and Appendix

1. Bibliography

Bibliography only contains references referred to in the description (internship, proposals and final project reports), and is arranged alphabetically by the last name of the first author. Bibliography of books and magazines is not differentiated, namely in the following order:

- 1). Book: author's name, year published, *book title* (italicized), to what volume, issue to what, name of publisher, and city of publication.
- 2). Magazine: author's name, year published, *post title* (italicized), ma-keep the official abbreviation, volume, and referring page numbers.

There are slight differences between the various fields of writing, for example in the use of punctuation marks, but the outline remains the same. Therefore, small differences are still allowed, as long as they are obedient to the whole writing.

2. Attachments

Attachments are used to obtain data or other information that serves to complement the descriptions that have been presented in the main part of a manuscript (for example: detailed drawings and other information from the project for internship reports, calculations or test results from the laboratory for the final research report, as well as calculation or detailed planning drawings for the final building planning report).

The title / name of the attachment is written and arranged in order of the chapter titles that are described in the main part of a manuscript. For example: Annex II.1, Attachment II.2, Attachment III.1, Attachment III.2, and so on.

CHAPTER III

REPORT OF PRACTICE

A. Contents and Systematics of the Report

The scope and content of the internship report are arranged in a systematic manner as follows.

CHAPTER I INTRODUCTION

- A. Project Overview
 - 1. Background
 - 2. Purpose and benefits
 - 3. Source of funds and timeframe
- B. Project Tennis Data
 - 1. Subgrade
 - 2. Type of structure
 - 3. The main ingredient
 - 4. Hydrology and meteorology (for hydro work)
 - 5. Supporting facilities

CHAPTER II. PROJECT MANAGEMENT AND CONTROL

- A. Definition of Management
- B. Project Organization
 - 1. Elements of project management
 - 2. The working relationship between elements of project management
 - 2a). *Between owner and planner*
 - 2b). *Between owner and supervisor*
 - 2c).
 - 3. Contractor organization
- C. Auctions
 - 1. Type of auction
 - 2. The auction process

D. Project Control

1. Quality control
2. Control of time
3. Control costs

CHAPTER III. PROJECT IMPLEMENTATION

- A. Building Materials
- B. Project Equipment
- C. Implementation of Work

This sub-chapter contains a description of the types and methods of carrying out the work that takes place during internship, complete with pictures / photos.

CHAPTER IV. DISCUSSION

This chapter is in the form of analysis that is planned or carried out, among others: structural planning, material mixture design, project implementation control, analysis of the number of equipment, analysis of work unit prices, hydraulic analysis, hydraulic analysis, and others.

CHAPTER V. CONCLUSIONS AND SUGGESTIONS

A. Conclusion

Conclusions are drawn based on the previous chapter, including: work implementation, quality control, discussion results.

B. Suggestions

Suggestions contain input to the project manager so that the work can be better.

REFERENCES

ATTACHMENT

B. Format and Writing Rules

The internship report consists of three parts, namely: the first part, the main part, and the final part.

1. The beginning

The beginning includes the cover page, title page, endorsement page, preface, table of contents, list of figures, list of tables, list of attachments, and list of notations and abbreviations.

1a). Front cover page. The cover page contains: the project name, the purpose of internship, the symbol of the Muhammadiyah University of Surakarta, the name and number of the student, the name of the intended institution, and the year of completion of the internship report, with the following explanation:

- 1). Project name, written clearly along with its location.
- 2). The purpose of internship, namely 'to partially fulfill the requirements to achieve a Bachelor's degree in Civil Engineering'.
- 3). The university symbol, namely the symbol / logo of the Muhammadiyah University of Surakarta, which is round with a diameter of about 5.5 cm.
- 4). Name and student number, namely the name of the student who compiled the internship report, written in full (no abbreviation may be used). Student numbers (NIM and NIRM) are listed below the name.
- 5). The name of the intended agency, namely 'CIVIL ENGINEERING STUDY PROGRAM FACULTY OF ENGINEERING MUHAMMADIYAH UNIVERSITY OF SURAKARTA'.
- 6). The year of completion of the internship report, placed under 'UNIVERSITAS MUHAMMADIYAH SURAKARTA'.

1b). Title page. The title page contains the same text as the front cover page, but typed on white paper (see Appendix II.1).

1c). Endorsement page. This page contains the signatures of the Report Advisor, the Field Advisor (from the project side), and the Head of the Study Program (see Appendix II.2).

1d). Foreword. The foreword contains a brief description of the purpose of internship, explanations, and thanks. In the foreword there is nothing of a scientific nature.

1e). Table of contents. The table of contents is intended to provide a comprehensive overview of the contents of the report and as a guide for readers who wish to immediately see a chapter title or sub-chapter title. The table of contents contains the order of the Title of Chapter, Sub-Chapter, Subsection of Sub-Chapter, and others, along with the page number (see Appendix II.3).

1f). List of picture. If in the internship report there are many pictures, it is necessary to have a list of figures that contains the sequence of image titles along with the page numbers. But if there is only one image, this list is not necessary.

1g). List of Tables. This table list contains the order of the table titles and their page numbers.

Whether or not this table list is necessary is the same as the list of figures.

1h). Appendix List. Similar to the list of figures and the list of tables, if the internship report is accompanied by attachments, then a list of attachments is made containing the order of the attachment titles and page numbers. An example can be seen in this book's APPENDIX LIST.

1i). List of notations and abbreviations. The list of notations and abbreviations is a list of notations / symbols and abbreviations used in the report along with their

meanings and units, written in alphabetical order of notation, then the sequence of symbols and abbreviations.

2. The main part

The main part of the internship Report contains chapters and sub-chapters in a systematic manner as described in Chapter II.A.

3. The end

The final section contains a bibliography and attachments obtained during the implementation of internship. Bibliography and attachments are written according to the rules set out in Chapter IH

REFERENCES

- Final Project Coordinator, 2015. *Final Project Guide 2015*, Department of Engineering Informatika, Faculty of Engineering, Muhammadiyah University Jakarta, Jakarta.
- Undergraduate Task Coordinator, 2006. *Guidelines for Writing Undergraduate Assignments*, Program Mechanical Engineering Studies, Faculty of Engineering, Bandung Institute of Technology, Bandung.
- Civil Engineering Lecturer Team, 2010. *Guidelines for Preparation of internship Reports, Final Project Proposals, and Final Project Reports*, Department of Civil Engineering, Faculty of Engineering, Muhammadiyah University of Surakarta, Surakarta.
- Drafting Team, 2011. *Final Project Implementation Guidelines*, Study program Mechanical Engineering, Faculty of Engineering, Siliwangi University, Tasikmalaya.
- Drafting Team, 2013. *Guidelines for Writing Thesis / Thesis and Report internship*, Department of Electrical Engineering, Faculty of Engineering, Muhammadiyah University, Yogyakarta, Yogyakarta.
- Drafting Team, 2015. *Final Project Guide 2015*, Informatics Engineering, Faculty of Engineering, Muhammadiyah University of Surakarta, Surakarta.
- University of Indonesia, 2008. *Technical Guidelines for Student Final Project Writing University of Indonesia*, University of Indonesia, Depok.
- University of Lampung, 2012. *Technical Work Guidelines for Mechanical Engineering Departments universitas Lampung*, University of Lampung, Lampung.
-

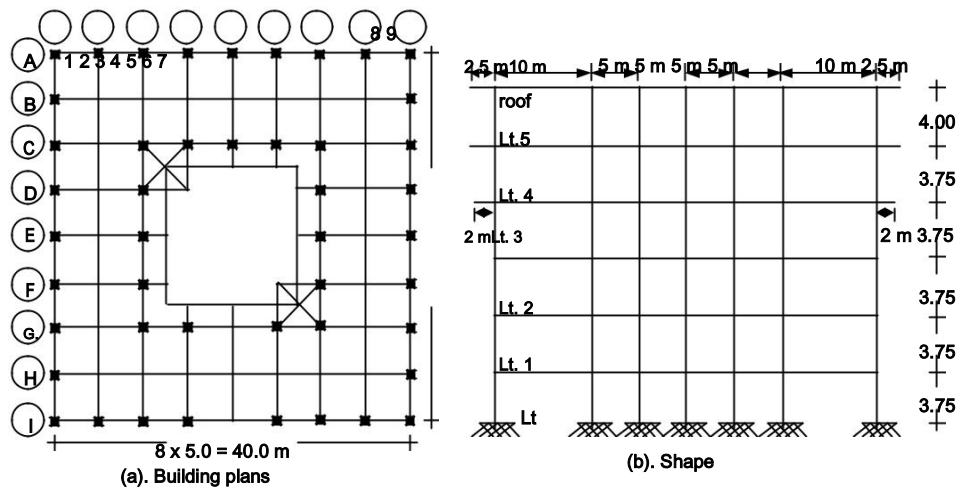


Figure I.1. Building plans and portal shapes
Source:

Table I.1. The level of waste of portal planning results (M d / M u)

Source:

No. Structure type	SRPMM Portal			SRPMK Portal		Bandage-	
	M u (kNm)	M d (kNm)	M d / M u (1)	M u (kNm)	M d (kNm)	M d / M u cold (2)	n = (1) / (2)
A. Beams							
1 Beams Lt. Roof	2826.88	3633.18	1.29	3005.04	3622.66	1.21	1.07
2 Beams Lt.5	4220.75	4901.12	1.16	4406.32	5137.06	1.17	0.99
3 Block Lt. 4	5322.53	6338.02	1.19	4693.21	5590.64	1.19	1.00
4 Block Lt. 3	6004.70	7600.46	1.27	5477.97	5931.32	1.08	1.18
5 Block Lt. 2	6286.36	7272.98	1.16	5837.67	6469.52	1.11	1.05
6 Block Lt. 1	6068.04	7242.72	1.19	5582.18	6229.48	1.12	1.06
Number of sub A.	30729.26	36988.48	1.20	29002.39	32980.68	1.14	1.05
B. Column							
7 Column Lt.5	1307.11	1555.01	1.19	1087.74	1337.86	1.23	0.97
8 Column Lt. 4	1193.79	1472.84	1.23	942.42	1103.01	1.17	1.05
9 Column Lt. 3	1361.69	1576.36	1.16	897.36	1131.18	1.26	0.92
10 Column Lt. 2	1366.07	1731.11	1.27	1051.46	1260.18	1.20	1.06
11 Column Lt. 1	1957.15	2189.10	1.12	1062.27	1202.40	1.13	0.99
12 Column Base Floor	1266.38	1665.96	1.32	1214.83	1547.50	1.27	1.04
Number of sub B	8452.19	10190.38	1.21	6256.08	7582.13	1.21	1.00
Number of sub (A + B)	39181.45	47178.86	1.20	35258.47	40562.81	1.15	1.04

**DEVELOPMENT PROJECTS
HOUSE OF JAVA I BOYOLALI**

Internship Report

**to partially meet the requirements of achieving a
Bachelor's degree in Civil Engineering**



arranged by:

**AISYATUL HIDAYAH
NIM: D100 130 088**

**CIVIL ENGINEERING STUDY PROGRAM FACULTY OF ENGINEERING
MUHAMMADIYAH SURAKARTA UNIVERSITY
2016**

VALIDITY SHEET

BUILDING DEVELOPMENT PROJECT
HOUSE OF JAVA I BOYOLALI

Internship Report

to partially meet the requirements of achieving a
Bachelor's degree in Civil Engineering

arranged by:

AISYATUL HIDAYAH
NIM: D100 130 088

Approved,

Supervisor

Field Advisor

Ir. Ali Asroni, MT
NIK: 484

Respati Gatot Santosa, ST, MM
director

Knowing,

Head of the Civil Engineering Study Program,
Faculty of Engineering muhammadiyah Surakarta university

Mochamad Solikin, ST, MT, Ph.D.
NIK: 792

TABLE OF CONTENTS

	Page
TITLE PAGE.....	i
VALIDITY SHEET	ii
FOREWORD.....	iii
LIST OF PICTURE.....	iv
APPENDIX LIST	x
CHAPTER I PRELIMINARY	
A. Project Overview	1
1. Background.....	1
2. Benefits and project development objectives	2
3. Project location	2
4. Source of funds and time period	2
B. Project Data	3
1. General project data	3
2. Project technical data.....	4
CHAPTER II. PROJECT MANAGEMENT	5
A. Definition of Management	5
B. Project Management Elements	6
1. Project owner (<i>owner</i>).....	6
2. Construction management consultant	7
3. Planning consultant	8
4. Contactors / project implementers	8
C. Working Relationship Between Project Management Elements	10
1. Between the project owner and the construction management consultant.....	11
2. Between the project owner and the planner.....	11
3. Between the project owner and the contractor.....	11
4. Between the project owner and the planner.....	12
5. Between construction management consultants and planners	12
6. Between construction management consultants and contractors	13
7. Between planners and contractors.....	13
D. Contractor Organization.....	13
1. Director (<i>Director</i>).....	13
2. Project Head (<i>Project Manager</i>).....	13
3. <i>Site Engineer</i>	15
4. <i>Site Manager</i>	16
5. Executor.....	16
6. Administration and Finance.....	17
7. Measurer and Charter	17
8. <i>Surveyor</i>	18
E. Labor	18
1. Type of workforce.....	18
2. Working time	19

	3. Salary for labor.....	19
	4. Work safety.....	20
	CHAPTER III. BUILDING MATERIALS AND EQUIPMENT.....	21
	A. Project Resources.....	21
	B. Building Materials.....	21
	1. Water.....	21
	2. Cement (<i>portland cemen</i>).....	21
	3.Fine aggregate (sand).....	21
	4. Coarse aggregate (gravel and split).....	25
	5. Reinforcing steel.....	26
	6. Concrete <i>ready mix</i>	26
	7. Cement mortar.....	27
	8. Floor slabs (<i>precast</i>).....	28
	9. Light brick (<i>hebel</i>).....	29
	10..... (and so on).....	
	C. Project Equipment.....	
	1. <i>Mobile crane</i>	32
	2. <i>Concrete mixer truck</i>	32
	3..... (and so on).....	33
	CHAPTER IV. WORK IMPLEMENTATION.....	40
	A. Review of Project Work Plans.....	40
	B. Completed Work.....	41
	C. Work Performed.....	42
	1. Column work <i>precast</i>	42
	1a). <i>Column reinforcement and casting</i>	42
	1b). <i>Installation of precast column</i>	43
	1c). <i>Grouting precast column</i>	45
	2.Block work <i>precast</i>	45
	1a). <i>Reinforcement and beam casting</i>	46
	1b). <i>Installation of precast blocks</i>	47
	1c). <i>Grouting precast beam</i>	47
	3.Floor plate work <i>precast</i>	48
	3a). <i>Transport of floor plates</i>	48
	3b). <i>Floor plate installation</i>	48
	3c). <i>Connection between floor plates</i>	49
	4. Ladder work.....	..
	4a). <i>Stair formwork</i>
	4b). <i>Ladder reinforcement</i>
	4c). <i>Casting ladder</i>
	CHAPTER V. CONTROL OF THE PROJECT.....	..
	A. Quality Control.....	..
	1. Concrete mix viscosity.....	..
	2.Concrete compressive strength.....	..
	3. Tensile strength of reinforcing steel.....	..
	B. Time Control.....	..
	1. <i>Network planning</i>

2. <i>Barchart</i> and the S curve	
C. Cost Control.....	
CHAPTER VI. DISCUSSION	
A. Field Plan	
B. Implementation of Concrete Works <i>Precast</i>	
1. The method of implementing the concrete <i>precast</i>	
2. Advantages of concrete construction <i>precast</i>	
3. Concrete construction problems <i>precast</i>	
C. Column Structure Work	
1. Measurement of the straightness of the column	
2. Connection between columns and columns.....	
3. Connection between columns and beams.....	
D. Implementation Barriers and How to Overcome.....	
1. Barriers to implementation	
2. How to overcome obstacles	
CHAPTER VII. CONCLUSIONS AND RECOMMENDATIONS	
A. Conclusion	
B. Suggestions	
REFERENCES	
APPENDIX	