MODULE PORTOFOLIO

EVEN SEMESTER ACADEMIC YEAR 2019/2020

<table>
<tr><td>MODULE NAME</td><td>:</td><td>Technology Information & Big Data</td><td>Lecture</td></tr>
<tr><td>CLASS</td><td>:</td><td>2018</td><td rowspan="3">Arum Handini Primandari, M.Sc.</td></tr>
<tr><td>SEMESTER</td><td>:</td><td>4</td></tr>
<tr><td>DATE</td><td>:</td><td>30 July 2020</td></tr>
<tr><td>PROGRAM LEARNING OUTCOME AND COURSE OUTCOME</td><td>:</td><td colspan="2">PLO (KKa: Technique) Able to design experiments, including the collection and generation of data (in the form of surveys, experiments or simulations), organizing the data, analysis of the data using statistics techniques and the extraction of valid conclusions by utilizing a minimum of one device type of software statistics

(KUi: Technique) Capable of documenting, storing, securing, and determining the background of data to ensure authenticity and prevent plagiarism

After completing this course, the students have ability to:
CO 1. Students are able to explain the development of computer hardware and statistics software
CO 2. Students are able to collect data
CO 3. Students are able to organize data
CO 4. Student are able to carry out web scraping

Mapping CO and PLO
<table>
<tr><th rowspan="2">CO</th><th colspan="12">PLO</th></tr>
<tr><th>E</th><th>N</th><th>T</th><th>H</th><th>U</th><th>S</th><th>I</th><th>A</th><th>S</th><th>T</th><th>I</th><th>C</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>√</td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>√</td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>√</td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>√</td><td></td><td></td></tr>
</table></td></tr>
<tr><td>LEARNING STRATEGIES</td><td>:</td><td colspan="2">This course was done with several strategies such as discussion and team project.</td></tr>
<tr><td>ASSESSMENT</td><td>:</td><td colspan="2">The final mark will be weighted as follows:
<table>
<tr><th>No</th><th>Assessment components</th><th>Assessment types</th><th>Weight (percentage)</th></tr>
<tr><td>1</td><td>CO 1</td><td>Quiz
Assignment</td><td>20%</td></tr>
<tr><td>2</td><td>CO 2</td><td>Quiz
Assignment</td><td>15%</td></tr>
<tr><td>3</td><td>CO 3</td><td>Final Exam</td><td>30%</td></tr>
<tr><td>4</td><td>CO 4</td><td>Midterm Exam</td><td>35%</td></tr>
<tr><td colspan="3">Total of percentage (weight)</td><td>100%</td></tr>
</table>
1. Quiz
   a. The quiz is given to measure the student knowledge about computer hardware & software, also about big data and its software;</td></tr>
</table>

b. Students had two quizezz.

2. Assignment
   a. Assignment was given at least four times during a semester, they are read and write data, collect online data, basic query, and scraping.
   b. The sssignment utilized software R and tool BigQuery of Google Cloud Platform service. For scraping, the software were dataminer and parsehub.
   c. The assignment was an individual work. However they could discuss it with peers.
   d. The schedule of assignment was stated in the lesson plan.
3. Midterm test
   a. Midterm exam was held in the 8th meeting. Students was given about 100 minutes (plus 10 minutes extended time for online submission) to finish the exam.
   b. The midterm exam was focus on measuring the ability to organize data using subquery
   c. There were some types of problem, such as short answer, true/false question, and essay.
4. Final test
   a. Final Exam was held in the 16th meeting.
   b. The final exam was writing a report paper in collaboration with Data Visualization classes.
   c. The objective of this report showing student the process of collecting data and visualizing it to get some insight.

CALCULATION PROGRAM LEARNING OUTCOME :

The calculation of CO and PLO for each student:

No	NIM	KKa1	KKa2	KKa3	KUi	Final
1	17611064	90.89	95.92	97.35	93.98	94.66
2	17611067	80.89	55.78	84.77	62.19	71.74
3	18611044	96.25	71.43	99.34	93.98	92.66
4	18611052	97.68	65.31	90.73	93.98	89.44
5	18611070	92.68	85.03	98.01	93.98	93.59
6	18611071	87.32	83.67	73.51	89.00	83.22
7	18611072	99.82	99.32	99.34	88.45	95.62
8	18611078	104.29	99.32	98.01	93.98	98.05
9	18611080	99.82	95.24	98.01	93.98	96.55
10	18611081	90.89	99.32	85.43	90.15	90.26
11	18611090	104.29	99.32	90.73	88.45	93.93
12	18611091	90.89	99.32	94.04	99.50	96.11
13	18611092	90.54	81.63	94.04	93.98	91.46
14	18611093	99.82	87.07	73.51	99.50	89.90
15	18611094	99.82	95.92	98.01	99.50	98.58
16	18611098	104.29	95.24	97.35	90.15	95.90
17	18611099	92.68	85.03	88.74	93.98	90.80
18	18611101	99.82	99.32	98.01	93.98	97.16
19	18611102	99.82	99.32	98.01	93.98	97.16
20	18611104	87.32	95.92	93.38	93.98	92.76
21	18611105	97.14	74.83	98.68	88.45	91.21

22	18611109	104.29	91.84	97.35	84.62	93.46
23	18611113	99.82	71.43	96.03	93.98	92.38
24	18611115	100.71	78.23	96.03	99.50	95.51
25	18611116	99.82	85.03	99.34	93.98	95.41
26	18611121	99.82	82.31	97.35	93.98	94.41
27	18611130	87.32	71.43	99.34	93.98	90.87
28	18611138	96.25	82.31	97.35	88.45	91.76
29	18611140	96.25	87.07	99.34	90.15	93.66
30	18611148	100.71	91.84	97.35	93.98	96.01

Achievement of PLO in Information Technology & Big Data course Academic Year 2019/2020

ITBD	**E**	**N**	**T**	**H**	**U**	**S**	**I**	**A**	**S**	**T**	**I**	**C**
CO 1										96.40		
CO 2										86.83		
CO 3										94.28		
CO 4										92.06		
Achievement of PLO										92.81		

By the category, here is the summarization table of CO achievement

Categories	Count of KKa1	Count of KKa2	Count of KKa3	Count of KUi
Excellent	30	24	28	29
Good	0	5	2	0
Satisfy	0	1	0	1
Fail	0	0	0	0
Grand Total	30	30	30	30

LEARNING OUTCOME ANALYSIS :

PLO Assessment Rubric

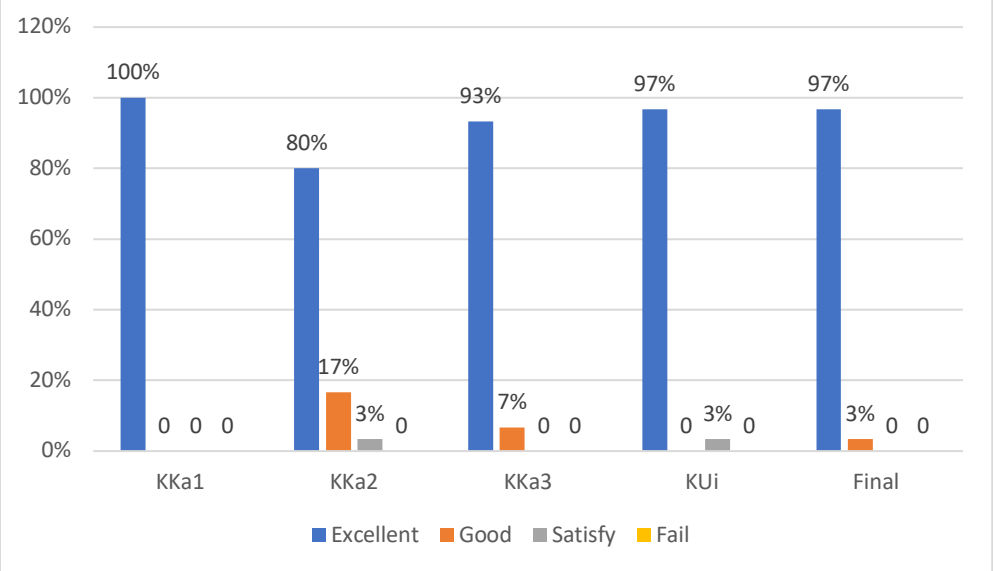
PLO	**Description**	**Excellent**	**Good**	**Satisfy**	**Fail**
Technique	Able to collecting and organizing the data, analysis of the data using statistics techniques by utilizing a minimum of one device type of	Able to collecting and organizing the data, analysis of the data using statistics techniques by utilizing a minimum of one device type of software statistics	Able to collecting and organizing the data, analysis of the data using statistics techniques by utilizing a minimum of one device type of software statistics	mastering the concepts of probability theory and statistics, mathematics , calculus, elementary linear algebra, statistical analysis	mastering the concepts of probability theory and statistics, mathematics , calculus, elementary linear algebra, statistical analysis

	software statistics & Capable of documenting , storing, securing, and determining the background of data to ensure authenticity with score at least 76.25	& Capable of documenting, storing, securing, and determining the background of data to ensure authenticity with score more than 65 and less than 76.24	& Capable of documenting, storing, securing, and determining the background of data to ensure authenticity with score more than 60 and less than 64.99	methods, and the basic of computer programmin gvwith score at least 55.00 and less than 59.99	methods, and the basic of computer programmin g with score less than 55.00.

Achievement number of PLO

	Number of students	Percentage (%)
Excellent	29	93.33
Good	1	5.00
Satisfy	0	0.00
Fail	0	1.67
Total	30	100.00

The percentage of each CO under categories.



STUDENT'S LEARNING PERFORMANCE ANALYSIS	:	Out of 30 students who enroll Information Technology and Big Data, about 97% have an excellent mark. The rest, 3%, only have good mark because she/he only got satisfy mark in the two CO. Based on the KKa2 (Students are able to **collect** data) achievement report, around 17% attendance only got good mark. It did not mean that they were lacking in collecting data; instead, it only about how they did not find a suitable data source requested in the problems. In general, the student were able in collecting and organizing data especially big data. In the process of collecting data,

		they were also able to documenting and storing into another form to ensure authenticity.
RECOMMENDATION FOR FUTURE LEARNING	:	There is recommendation for better course in the future is to enrich the material of big data using any source, especially cloud technology. It will help student to be more experienced in organizing big data.
RECOMMENDATION FOR INSTITUTION	:	Recommendation for institution is by giving peers tutor to a student having trouble to follow a course.