



**Universitas Negeri Surabaya  
Faculty of Engineering,  
Undergraduate Study Program in Informatics Engineering**

Document Code

## SEMESTER LEARNING PLAN

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>			<b>SEMESTER</b>	<b>Compilation Date</b>										
Information Retrieval System	5520203090		T=3	P=0	ECTS=4.77	5	July 17, 2024										
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>			<b>Study Program Coordinator</b>											
	.....		.....			Aditya Prapanca, S.T., M.Kom.											
<b>Learning model</b>	<b>Project Based Learning</b>																
<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program that is charged to the course</b>																
	<b>Program Objectives (PO)</b>																
	<b>PLO-PO Matrix</b>																
		P.O															
	<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																
	P.O	Week															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Short Course Description</b>	This course discusses algorithms and applications developed in Information Retrieval. The focus of this course includes discussions on preprocessing, document classification, sentiment analysis, document clustering, document summarization, and natural language processing. And there is also more emphasis on how to apply algorithms in each topic discussed in Information Retrieval. Several visual tools (software), such as Netbeans, Microsoft Visual Studio and Matlab, are used to make lectures easier. This course discusses algorithms and applications developed in Information Retrieval. The focus of this course includes discussions on preprocessing, document classification, sentiment analysis, document clustering, document summarization, and natural language processing. And there is also more emphasis on how to apply algorithms in each topic discussed in Information Retrieval. Several visual tools (software), such as Netbeans, Microsoft Visual Studio and Matlab, are used to make lectures easier.																
<b>References</b>	<b>Main :</b>																
	<ol style="list-style-type: none"> <li>1. Manning, Christopher D., Raghavan, Prabhakar., Schütze, Hinrich. 2009. An Introduction to Information Retrieval. Cambridge University Press.</li> <li>2. Ceri, S., et.al. 2013. Web Information Retrieval . Springer Berlin Heidelberg.</li> <li>3. McCandless, M., Hatcher, E., &amp; Gospodnetic, O. 2010. Lucene in Action: Covers Apache Lucene 3.0 . Manning Publications Co.</li> </ol>																
	<b>Supporters:</b>																
<b>Supporting lecturer</b>	Naim Rochmawati, S.Kom., M.T.																
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time ]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>										
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)										

1	Students are able to apply the concept of Information Retrieval Systems.	<ol style="list-style-type: none"> <li>1.Explain the basic concepts of Information Retrieval Systems;</li> <li>2.Implement boolean retrieval</li> <li>3. Implementing Index Construction</li> </ol>		<p>Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50</p>	<p>Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum</p>		20%
2	Students are able to apply the concept of Information Retrieval Systems.	<ol style="list-style-type: none"> <li>1.Explain the basic concepts of Information Retrieval Systems;</li> <li>2.Implement boolean retrieval</li> <li>3. Implementing Index Construction</li> </ol>		<p>Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50</p>			0%
3	Students are able to design an Information Retrieval System by utilizing commonly used techniques.	<ol style="list-style-type: none"> <li>1.Identify commonly used Information Retrieval System techniques;</li> <li>2.Applying the Zone Based Index concept;</li> <li>3.Applying the concept of Frequency and Term Weighting;</li> <li>4.Applying the concept of Vector Space Models for Weighting</li> </ol>	<p><b>Form of Assessment :</b> Participatory Activities</p>	<p>Approach: Scientific Model: Cooperative Method: Discussion, Presentation and Practical 3 X 50</p>	<p>Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum</p>		20%
4	Students are able to design an Information Retrieval System by utilizing commonly used techniques.	<ol style="list-style-type: none"> <li>1.Identify commonly used Information Retrieval System techniques;</li> <li>2.Applying the Zone Based Index concept;</li> <li>3.Applying the concept of Frequency and Term Weighting;</li> <li>4.Applying the concept of Vector Space Models for Weighting</li> </ol>	<p><b>Form of Assessment :</b> Participatory Activities</p>	<p>Approach: Scientific Model: Cooperative Method: Discussion, Presentation and Practical 3 X 50</p>			20%

5	Students are able to apply evaluation techniques in the Information Retrieval System.	<ol style="list-style-type: none"> <li>1. Identify the parts of evaluation techniques in the Information Retrieval System;</li> <li>2. Applying evaluation techniques in the Information Retrieval System;</li> <li>3. Applying the concept of Relevance Assessment.</li> </ol>	<b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50	Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum		40%
6	Students are able to apply techniques to improve information retrieval results.	<ol style="list-style-type: none"> <li>1. Explain the basic concepts of techniques for improving information retrieval results;</li> <li>2. Implementing Relevance Feedback;</li> <li>3. Implementing Query Expansion;</li> <li>4. Implemented Automatic Thesaurus generation.</li> </ol>		Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50			0%
7	Students are able to apply techniques to improve information retrieval results.	<ol style="list-style-type: none"> <li>1. Explain the basic concepts of techniques for improving information retrieval results;</li> <li>2. Implementing Relevance Feedback;</li> <li>3. Implementing Query Expansion;</li> <li>4. Implemented Automatic Thesaurus generation.</li> </ol>		Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50			0%
8	Sub-Summative Exam / Midterm Exam	Sub-Summative Exam / Midterm Exam		Written and/or Practical Exam 3 X 50			0%
9	Students are able to apply information retrieval techniques to structured data (XML).	<ol style="list-style-type: none"> <li>1. Explain the basic concept of information retrieval in structured data;</li> <li>2. Implement XML Retrieval.</li> </ol>	<b>Form of Assessment :</b> Participatory Activities	Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50	Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum		0%

10	Students are able to apply information retrieval techniques to structured data (XML).	<ol style="list-style-type: none"> <li>1.Explain the basic concept of information retrieval in structured data;</li> <li>2.Implement XML Retrieval.</li> </ol>		<p>Approach: Scientific Model:  Problem Based Learning Method:  Discussion, Presentation and Practicum  3 X 50</p>			0%
11	Students are able to apply text classification techniques in the information retrieval process.	<ol style="list-style-type: none"> <li>1.Explain the basic concepts of text classification;</li> <li>2.Applying Naive Bayes in text classification;</li> <li>3.Applying evaluation techniques in the text classification process.</li> </ol>		<p>Approach: Scientific Model:  Problem Based Learning Method:  Discussion, Presentation and Practicum  3 X 50</p>			0%
12	Students are able to apply text classification techniques in the information retrieval process.	<ol style="list-style-type: none"> <li>1.Explain the basic concepts of text classification;</li> <li>2.Applying Naive Bayes in text classification;</li> <li>3.Applying evaluation techniques in the text classification process.</li> </ol>		<p>Approach: Scientific Model:  Problem Based Learning Method:  Discussion, Presentation and Practicum  3 X 50</p>			0%
13	Students are able to use programming libraries that are commonly used in developing Information Retrieval Systems.	<ol style="list-style-type: none"> <li>1.Identify the types of programming libraries commonly used in the development of Information Retrieval Systems;</li> <li>2.Implemented the use of Core Lucene.</li> </ol>		<p>Approach: Scientific Model:  Problem Based Learning Method:  Discussion, Presentation and Practicum  3 X 50</p>	<p>Approach: Scientific Model: Problem Based Learning Method:  Discussion, Presentation and Practicum</p>		40%
14	Students are able to use programming libraries that are commonly used in developing Information Retrieval Systems.	<ol style="list-style-type: none"> <li>1.Identify the types of programming libraries commonly used in the development of Information Retrieval Systems;</li> <li>2.Implemented the use of Core Lucene.</li> </ol>	<p><b>Form of Assessment :</b>  Project Results Assessment / Product Assessment</p>	<p>Approach: Scientific Model:  Problem Based Learning Method:  Discussion, Presentation and Practicum  3 X 50</p>			20%

15	Students are able to use programming libraries that are commonly used in developing Information Retrieval Systems.	1. Identify the types of programming libraries commonly used in the development of Information Retrieval Systems; 2. Implemented the use of Core Lucene.		Approach: Scientific Model: Problem Based Learning Method: Discussion, Presentation and Practicum 3 X 50			0%
16	Summative Exam / Final Semester Exam	Summative Exam / Final Semester Exam		Written and/or Practical Exam 3 X 50			0%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	40%
2.	Project Results Assessment / Product Assessment	60%
		100%

#### Notes

- Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- Forms of assessment:** test and non-test.
- Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.