



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Data Science Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Ethics of Artificial Intelligence	4920202032	Compulsory Study Program Subjects	T=2	P=0	ECTS=3.18	3	August 1, 2023
AUTHORIZATION		SP Developer	Course Cluster Coordinator			Study Program Coordinator	
		Dr. Elly Matul Imah, M. Kom.	Dr. Elly Matul Imah, M. Kom.			Yuliani Puji Astuti, S.Si., M.Si.	

Learning model	Case Studies																																	
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																	
	PLO-10 Able to use technology in the field of data science																																	
	Program Objectives (PO)																																	
	PLO-PO Matrix																																	
	<table border="1" style="margin: auto;"> <tr> <td style="width: 50px;">P.O</td> <td style="width: 100px;">PLO-10</td> </tr> </table>	P.O	PLO-10																															
P.O	PLO-10																																	
PO Matrix at the end of each learning stage (Sub-PO)																																		
	<table border="1" style="margin: auto;"> <tr> <td rowspan="2" style="width: 30px;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 20px;">1</td> <td style="width: 20px;">2</td> <td style="width: 20px;">3</td> <td style="width: 20px;">4</td> <td style="width: 20px;">5</td> <td style="width: 20px;">6</td> <td style="width: 20px;">7</td> <td style="width: 20px;">8</td> <td style="width: 20px;">9</td> <td style="width: 20px;">10</td> <td style="width: 20px;">11</td> <td style="width: 20px;">12</td> <td style="width: 20px;">13</td> <td style="width: 20px;">14</td> <td style="width: 20px;">15</td> <td style="width: 20px;">16</td> </tr> </table>	P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																		

Short Course Description Artificial Intelligence (KA) or Artificial Intelligence (AI) is developing very quickly and has been widely used in several devices and systems in society and government. Knowledge of Railway Ethics is very necessary. This lecture covers the philosophical issues raised regarding what the railway system is, its current and future use and development. Students will be introduced to how we align the goals of an autonomous train system with our own goals as humans. On the issue of whether the future of AI poses an existential threat to humanity. This lecture also discusses how to prevent learning algorithms from acquiring morally unacceptable biases. The discussion also concerns whether the railway system can be a moral agent and how we can hold the railway accountable. And how should we live with and understand thoughts that are foreign (KA) to our minds. By the end of the course, students are expected to have demonstrated knowledge of the philosophical issues involved in the ethics of artificial intelligence. Able to work in a small team to analyze and review AI Ethics cases and submit proposed solutions or prevention. Able to produce written work regularly until the deadline as a lecture output in the case study model. Student skills in research, analysis, and argumentation.

References

Main :

- Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: <http://www.unesco.org/open-access/terms-use-ccbysa-en>
- Bostrom, N. (2014), Superintelligence: Paths, Dangers, Strategies, Oxford University Press
- N. Bostrom and E. Yudkowsky. 'The ethics of artificial intelligence'. In W. M. Ramsey and K. Frankish, editors, The Cambridge Handbook of Artificial Intelligence, pages 316–334. Cambridge University Press, Cambridge, 2014.

Supporters:

- Artikel pada jurnal: AI & Society · arXiv (with sanity preserver) – not a journal but most current research on AI is here · Ethics and Information Technology · Minds & Machines · Philosophy & Technology
- Top 9 ethical issues in artificial intelligence', World Economic Forum, 21 Oct 2016
- E. Yudkowsky. 'Artificial intelligence as a positive and negative factor in global risk' In Global Catastrophic Risks, edited by Nick Bostrom and Milan M. Cirkovic, 308–345. New York: Oxford University Press, 2008.
- K. Grace, J. Salvatier, A. Dafoe, B. Zhang, and O. Evans. 'When Will AI Exceed Human Performance? Evidence from AI Experts', arXiv:1705.08807, May 2017
- S. J. Russell, D. Dewey, and M. Tegmark, 'Research priorities for robust and beneficial artificial intelligence', AI Magazine, 2011
- Turkle, S. (2011), Alone Together, Basic Books – Introduction ('Alone Together') & Chapter 3 ('True Companions')
- Howard, D., Muntean, I. (2017) 'Artificial Moral Cognition: Moral Functionalism and Autonomous Moral Agency' in T.M. Powers (ed.), Philosophy and Computing, Philosophical Studies Series 128

Supporting lecturer Dr. Elly Matul Imah, M.Kom.

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (offline)	Online (online)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	Know and explain again the general definition of Artificial Intelligence Ethics	<ol style="list-style-type: none"> 1. participation value 10% 2. 20% short writing assignments 3. 20% short writing assignments 4. 50% end of semester essay 	<p>Criteria: Active during questions and answers.</p> <p>Form of Assessment : Participatory Activities</p>	Lecture, discussion and question and answer 2x50 minutes		<p>Material: Definition and general explanation of AI Ethics</p> <p>Bibliography: <i>Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</i></p> <p>Material: Introduction to the Ethics of Artificial Intelligence</p> <p>References: · N. Bostrom and E. Yudkowsky. 'the ethics of artificial intelligence'. In W. M. Ramsey and K. Frankish, editors, <i>the Cambridge Handbook of Artificial Intelligence</i>, pages 316–334. Cambridge University Press, Cambridge, 2014.</p>	1%
2	<ol style="list-style-type: none"> 1. Able to define KA singularity 2. Able to explain again about the KA singularity 	Explain singularity and be able to provide case examples at the end of the lecture	<p>Criteria: Continuous explanation, correct examples</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>Discussion and discussion of the singularity case: video: · Harris, S. 'Can we build AI without losing control over it?', TED talk, October 2016. Article: · Chalmers, D. (2010). the singularity: A philosophical analysis. <i>Journal of Consciousness Studies</i>, 17(9-1), 7-65. 2x50 minutes</p>		<p>Material: Singularity</p> <p>Bibliography: <i>Top 9 ethical issues in artificial intelligence', World Economic Forum, 21 Oct 2016</i></p> <p>Material: The Singularity</p> <p>Bibliography: · Bostrom, N. (2014), <i>Superintelligence: Paths, Dangers, Strategies</i>, Oxford University Press · Wallach, W., Allen, C. (2008), <i>Moral Machines</i>, Oxford University Press</p>	0%
3	<ol style="list-style-type: none"> 1. Able to identify cases if the railway system is more intelligent than humans 2. Able to explain conditions and give examples KA is smarter than humans 3. Able to provide solutions to overcome problems 		<p>Form of Assessment : Participatory Activities, Portfolio Assessment</p>	<p>Discussion and case presentation about what happens if KA is smarter than humans in completing a task? 2x50 minutes</p>		<p>Material: If KA is smarter than humans</p> <p>References: · Bostrom, N. (2014), <i>Superintelligence: Paths, Dangers, Strategies</i>, Oxford University Press · Wallach, W., Allen, C. (2008), <i>Moral Machines</i>, Oxford University Press</p> <p>Material: KA intelligence that exceeds humans in a certain skill</p> <p>Reference: <i>Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</i></p>	1%

4	<p>1.Able to explain about racism from KA.</p> <p>2.Able to analyze KA racism cases</p>			<p>Form groups, present and discuss.</p> <p>2x50 minutes</p>		<p>Material: Racist AI Reference: <i>Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</i></p> <hr/> <p>Material: Racist AI Bibliography: · N. Bostrom and E. Yudkowsky. 'the ethics of artificial intelligence'. In W. M. Ramsey and K. Frankish, editors, <i>he Cambridge Handbook of Artificial Intelligence</i>, pages 316–334. Cambridge University Press, Cambridge, 2014.</p> <hr/> <p>Material: Examples of racist AI issues Reference: <i>Top 9 ethical issues in artificial intelligence', World Economic Forum, 21 Oct 2016</i></p>	2%
5	<p>1.Understand the uses and dangers of Autonomous weapons.</p> <p>2.Know the ethics about Autonomous weapons</p>		<p>Form of Assessment : Participatory Activities</p>	<p>Studying N. Sharkey's video, 'Killer Robots in War and Civil Society', video talk, 10 August and reading · Sparrow, R. (2007). 'Killer robots', <i>Journal of Applied Philosophy</i>, 24. Write a short article based on the analysis of watching the video and analysis of the video regarding the ethics of Autonomous weapons.</p> <p>2 x 50 minutes</p>		<p>Material: Studying video N. Sharkey, 'Killer Robots in War and Civil Society', video talk, 10 August and reading · Sparrow, R. (2007). 'Killer robots', <i>Journal of Applied Philosophy</i>, 24. Write a short article based on the analysis of watching the video and analysis of the video about the ethics of Autonomous weapons. Bibliography: <i>Top 9 ethical issues in artificial intelligence', World Economic Forum, 21 Oct 2016</i></p> <hr/> <p>Material: 'Killer robots', <i>Journal of Applied Philosophy</i>, 24. Write a short article based on the analysis of watching the video and analysis of the video regarding the ethics of Autonomous weapons. Bibliography: <i>Articles in journals: · AI & Society · arXiv (with sanity preserver) – not a journal but most current research on AI is here · Ethics and Information Technology · Minds & Machines · Philosophy & Technology</i></p> <hr/> <p>Material: Ethical issues in autonomous weapons. References: <i>Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</i></p>	6%

6	<p>1. Able to define and analyze cases of falling in love with AI</p> <p>2. Able to explain the problems and causes of cases of falling in love with AI</p> <p>3. Able to convey ideas for solutions to prevent and overcome cases of falling in love with AI</p>		<p>Form of Assessment : Portfolio Assessment</p>	<p>Discussing the video: · Cases of AI misuse to harassment. Devlin, K. (2017). 'AI girlfriends robots', TED talk, April 2017 · Radiolab (2018). 'More or less Human', Podcast, May 2018 Reading material: · Turkle, S. (2011), Alone Together, Basic Books – Introduction ('Alone Together') & Chapter 3 ('True Companions') 2 x 50 minutes</p>		<p>Material: Discuss video: · Devlin, K. (2017). 'Sex robots', TED talk, April 2017 · Radiolab (2018). 'More or less Human', Podcast, May 2018 Reading material: · Turkle, S. (2011), Alone Together, Basic Books – Introduction ('Alone Together') & Chapter 3 ('True Companions') Library : Turkle, S. (2011), Alone Together, Basic Books – Introduction ('Alone Together') & Chapter 3 ('True Companions')</p> <p>Material: ethical case of KA falling in love with AI References: Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</p>	5%
7	<p>1. Understanding the case will KA take over our jobs</p> <p>2. Analyze cases about jobs taken over by KA</p> <p>3. Conveys what humans must do so that they are not replaced by KA</p> <p>4. Understand the signs for developing railways that do not harm humans</p>		<p>Criteria: active discussion and analyzing problems and presentation skills</p> <p>Form of Assessment : Practice / Performance</p>	<p>Analyzing cases in the journal 'Why are here Still So Many Jobs? he History and Future of Workplace Automation', he Journal of Economic Perspectives, 29, pp. 3–30 2 x 50 minutes</p>		<p>Material: Autor, DH (2015), 'Why Are There Still So Many Jobs? he History and Future of Workplace Automation', he Journal of Economic Perspectives, 29, pp. 3–30 Bibliography: Articles in journals: · AI & Society · arXiv (with sanity preserver) – not a journal but most current research on AI is here · Ethics and Information Technology · Minds & Machines · Philosophy & Technology</p>	4%
8	<p>Able to analyze cases of railway ethics violations</p>		<p>Form of Assessment : Portfolio Assessment</p>	<p>UTS</p>		<p>Material: uts Library:</p>	20%
9	<p>1. Able to define good and bad conditions for robots</p> <p>2. Able to identify cases of good robots and bad robots</p>		<p>Form of Assessment : Participatory Activities</p>	<p>Lectures, discussions and questions and answers 2 x 50 minutes</p>		<p>Material: good and bad KA Reference: · N. Bostrom and E. Yudkowsky. 'the ethics of artificial intelligence'. In W. M. Ramsey and K. Frankish, editors, he Cambridge Handbook of Artificial Intelligence, pages 316–334. Cambridge University Press, Cambridge, 2014.</p> <p>Material: Good railway signs Reference: Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</p> <p>Material: Artificial Moral Cognition Bibliography: Howard, D., Muntean, I. (2017) 'Artificial Moral Cognition: Moral Functionalism and Autonomous Moral Agency' in TM Powers (ed.), Philosophy and Computing, Philosophical Studies Series 128</p>	5%

10	Able to understand and explain the moral terminology of AI		Form of Assessment : Portfolio Assessment	Independent group work: · Anderson, M., Anderson, SL 'he Ethical Robot', UConn Today, 15 June 2011 · IEEE Spectrum, 'How to build a moral robot', YouTube, 31 May 2016 2 x 50 minutes		Material: Morals of AI Bibliography: Howard, D., Muntean, I. (2017) 'Artificial Moral Cognition: Moral Functionalism and Autonomous Moral Agency' in TM Powers (ed.), <i>Philosophy and Computing, Philosophical Studies Series 128</i> Material: AI Ethics Bibliography: Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...	5%
11	Able to explain bad and good robots/AI		Form of Assessment : Portfolio Assessment	Presentation of the results of the discussion regarding the case of driverless cars. If a collision occurs, who will be responsible. Who should be saved? And how preventive and ideal ideas should be according to ethics 2 x 50 minutes		Material: railway risks Reader: E. Yudkowsky. 'Artificial intelligence as a positive and negative factor in global risk' In <i>Global Catastrophic Risks</i> , edited by Nick Bostrom and Milan M. Cirkovic, 308—345. New York: Oxford University Press, 2008. Material: driverless car issues Reference: Top 9 ethical issues in artificial intelligence', <i>World Economic Forum</i> , 21 Oct 2016	4%
12	Able to explain bad and good robots/AI	1.The substance and cases reviewed 2.Scientific writing format	Criteria: 1.Writing rules 2.validity of data and reference sources 3.analysis and synthesis carried out 4.ability to identify problems Form of Assessment : Portfolio Assessment	Case studies of railway ethics violations found in society. Analyze and write in a paper in scientific writing format complete with references.	asynchronous in LMS Si Dia Unesa 2 x50 minutes	Material: cases of AI violations Bibliography: <i>Articles in journals:</i> · AI & Society · arXiv (with sanity preserver) – not a journal but most current research on AI is here · <i>Ethics and Information Technology</i> · <i>Minds & Machines</i> · <i>Philosophy & Technology</i>	5%
13	1.Know issues related to railway rights (robots and other railway-using systems) 2.Able to explain again about KA rights 3.What things should humans not do to KA?		Form of Assessment : Participatory Activities, Practice/Performance	Lectures and discussions 2 x 50 minutes		Material: robot rights Bibliography: · N. Bostrom and E. Yudkowsky. 'the ethics of artificial intelligence'. In W. M. Ramsey and K. Frankish, editors, <i>he Cambridge Handbook of Artificial Intelligence</i> , pages 316–334. Cambridge University Press, Cambridge, 2014. Material: AI ethics References: Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...	1%
14	1.Able to explain the terminology of living with alien minds 2.Being able to identify that human morals are important 3.Understand the concept of robust adversarial more wisely		Form of Assessment : Participatory Activities, Practice/Performance	Lectures and discussions 2 x 50 minutes		Material: human morals References: · N. Bostrom and E. Yudkowsky. 'the ethics of artificial intelligence'. In W. M. Ramsey and K. Frankish, editors, <i>he Cambridge Handbook of Artificial Intelligence</i> , pages 316–334. Cambridge University Press, Cambridge, 2014.	2%

15	1. Able to understand cases of AI violations related to human morals 2. The difference between humans and machines lies in the location of moral values	ability to analyze problems, convey solution ideas, and draw conclusions	Criteria: 1. substance of explanation of the problem and solution 2. active during question and answer Forms of Assessment : Project Results Assessment / Product Assessment, Portfolio Assessment, Practice / Performance	Discussion of the case and video · Tufekci, Z. 'Machine intelligence makes human morals more important', TED talk, 11 November 2016 · Coldewey, D., 'Laying a trap for self-driving cars', TechCrunch, 17 March 2 x 50 minute	Material: AI ethics: human morality References: <i>Unesco, "Ethical Impact Assessment A Tool of the Recommendation on the Ethics of Artificial Intelligence," 2023. [Online]. Available: http://www.unesco.org/...</i> Material: robust AI Reference: <i>SJ Russell, D. Dewey, and M. Tegmark, "Research priorities for robust and beneficial artificial intelligence", AI Magazine, 201</i>	6%
16	Able to write articles about railway ethics	1. Article substance 2. Presentation 3. Discussion skills 4. Understanding of the issues raised and AI ethical violations analyzed	Criteria: 1. Presentation skills 2. Ability to explain 3. Ability to analyze problems 4. Ability to conduct literature studies 5. Ability to answer questions 6. Ability to explain the type of violation ai 7. ability to present in article and oral form Form of Assessment : Project Results Assessment / Product Assessment	Project presentation and KA article creation 2 x 50 minutes	Material: articles related to AI ethics Bibliography: <i>Articles in journals: · AI & Society · arXiv (with sanity preserver) – not a journal but most current research on AI is here · Ethics and Information Technology · Minds & Machines · Philosophy & Technology</i>	35%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	14%
2.	Project Results Assessment / Product Assessment	37%
3.	Portfolio Assessment	41.5%
4.	Practice / Performance	7.5%
		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.