

Department name	Urban and Regional Planning
Course name	Landuse Modelling
Course code	DK184727
Semester	7
Credit	3
Lecturer name	Nursakti Adhi Pratomoatmojo (NAP) Fendy Firmansyah (FF)

Study material	<ol style="list-style-type: none"> 1. Data concept 2. Quantitative analysis technique approach 3. Qulsalittative abalysis technique and approach 	
Subject	<ol style="list-style-type: none"> 1. Introduction to the Landuse Modeling lecture and explanation of the lecture contract 2. Introduction to Cellular Automata and Introduction to LanduseSim as a spatial planning analysis tool 3. Review Cellular Automata and GIS for landuse modeling 4. Introduction of the LanduseSim user-interface and data type 5. Simple land use practice 6. Case study: Trend and Target / Scenario-based modeling 7. Modeling scheme: Neighborhood Filter, Time-Step 8. Explanation of the Features of Zoning, Land Elasticity, and Land Hierarchy 9. Simulation Practice from Beginning to End 10. Validation, Calculation of Accuracy and Model Calibration 11. Governance of land use in relation to land requirements (UrbanFootprint) 12. Practice Developing land use / impact assumptions 13. Development of planning scenarios with Landuse Modeling 14. Spatial Rapid Assessment based on scenarios and assessments 15. Small research related to Landuse Management 	
Learning outcomes imposed on the course	Knowledge	<ol style="list-style-type: none"> 1. Mastering the techniques and processes of regional and urban planning qualitatively, quantitatively, spatial modeling (geographic information systems) and presentation techniques. 2. Mastering spatial / aspatial planning methods in decision making.
	Special Skill	<ol style="list-style-type: none"> 1. Able to formulate the concept of planning and direction of the plan through the study of strategic problems in the context of cities, regions, coastal areas by understanding planning problems through observing and utilizing physical / spatial, social, economic and environmental data.

		<p>2. Able to utilize ICT in data management to produce information that is easily understood by the public and decision makers.</p> <p>3. Able to describe the spatial characteristics of cities, regions, coastal areas through analysis of the relationship between aspatial and spatial aspects so that information is available as a basis for developing planning models.</p> <p>4. Able to arrange spatial / spatial model alternatives through qualitative and quantitative approaches in the form of scenarios for setting spatial patterns and the structure of cities, regions, coastal areas and proposing solutions according to context.</p>
	General skill	<p>1. Able to demonstrate independent, quality and measurable performance.</p> <p>2. Being able to make decisions appropriately in the context of problem solving in his area of expertise, based on the results of analysis of information and data</p> <p>3. Able to carry out a self-evaluation process on work groups that are under their responsibility, and able to manage learning independently</p> <p>4. Able to document, store, secure and rediscover data to ensure validity and prevent plagiarism.</p>
CP-MK	Knowledge	<p>1. Students are able to master the data analysis approach techniques in the problems of the area / city planning field</p>
	Special skill	<p>1. Students are able to understand the concept of using Planning Information Systems and understand the methods of application in the Spatial Planning process.</p> <p>2. Students are able to provide information and display planning results into information systems for publication purposes.</p> <p>3. Students are able to draw up recommendations for space pattern recommendations using techniques in decision making using the GIS process.</p>
	General skill	<p>1. Students are able to communicate small research visually, verbally and in writing based on ICT</p>

Class meeting	Sub Learning Outcome of Course	Subject per week	Learning Method	Time estimation	Student learning experience	Criteria and scoring indicator	Scoring weight (%)
1	Students are able to understand concepts / theories and basic principles in landuse modeling Students are	<ul style="list-style-type: none"> • SAP discussion, evaluation, assignments. Definition of Landuse Modeling • Basic principles in spatial modeling practice 	M1, M7	480	Class meeting, discussion	Individual activeness	

Class meeting	Sub Learning Outcome of Course	Subject per week	Learning Method	Time estimation	Student learning experience	Criteria and scoring indicator	Scoring weight (%)
	able to understand the role of Landuse Modeling in improving planning and decision making processes	<ul style="list-style-type: none"> • Technology developments in regional and city planning • Application of Landuse Modeling in Spatial Planning 					
2-3	Students are able to understand the basic concepts related to Cellular Automata analysis techniques and the ability of LanduseSim as a planning analysis tool Students are able to identify driving factors and inhibitors of CA-based landuse modeling	<ul style="list-style-type: none"> • Cellular Automata Technique • Development of Cellular Automata • Cellular Automata Implementation • LanduseSim features, framework and output • Driving and inhibiting factors in Cellular Automata-based modelling 	M1, M7	480	Class meeting, discussion	Individual activeness	10%
4	Students are able to explain and review several Cellular automata techniques in land use modeling	<ul style="list-style-type: none"> • Example of CA in landuse modeling • Review of Journal related to CA Land use 	M1, M3	480	Individual work	Keaktifan Individu - Laboratorium, Review Jurnal Pemodelan	10 %
5	Students get to know the LanduseSim application and understand the types of data needed	<ul style="list-style-type: none"> • Introduction to the Land Use Sim GUI • Introduction to data types • Explanation of making input data 	M1, M3	480	Class meeting and discussion	Keaktifan Individu	

Class meeting	Sub Learning Outcome of Course	Subject per week	Learning Method	Time estimation	Student learning experience	Criteria and scoring indicator	Scoring weight (%)
6	Students understand the flow of the landuse simulation process with LanduseSim Students are able to practice simulation procedures in the LanduseSim application	<ul style="list-style-type: none"> • Explanation of the simulation process in LanduseSim • Simple simulation practice 	M1, M3	480	Class meeting, discussion, and individual work	Keaktifan Individu - Laboratorium	10 %
7	Students know several approaches that can be used for spatial prediction of urban development or land use, based on 2 case studies in both trends and scenarios	<ul style="list-style-type: none"> • Case Study: Trend Modeling • Case Study: Scenario / target modeling 	M1, M3	480	Class meeting and discussion,	Keaktifan Individu	
8	Students understand the functions of Neighborhood filters starting from filter operations, mechanisms and iterative periods in the landuse simulation process	<ul style="list-style-type: none"> • Explanation of Neighborhood Filters • Explanation of Characteristics of Neighborhood Filters • Explanation of Step-Time 	M1, M3	480	Kuliah Tatap Muka, Diskusi, dan Kerja Mandiri	Keaktifan Individu - Laboratorium	10 %

Class meeting	Sub Learning Outcome of Course	Subject per week	Learning Method	Time estimation	Student learning experience	Criteria and scoring indicator	Scoring weight (%)
9	Students understand and are able to apply the zoning feature (limitation of change), Elasticity and Hierarchy of Land in simulations using Land UseSim	<ul style="list-style-type: none"> • Description of the Transition with Zoning (LanduseSim) feature • Explanation of the implementation of Land Elasticity in the Land Use System • Explanation of the implementation of the landuse hierarchy in the simulation process with Land Use Sim 	M1, M7, M3	480	Class meeting, discussion, and individual work	Keaktifan Individu	
10	Students are able to apply the simulation process to start basic data in ArcGIS to the final output in the simulation process with LanduseSim	<ul style="list-style-type: none"> • Preparation of data in ArcGIS • Simulation process in Land Use Sim 	M2, M3, M4, M5	480	Discussion and individual work	Keaktifan Individu - Laboratorium	10 %
11	Students are able to calculate the accuracy of the model, such as overall accuracy, user accuracy, accuracy, error commission, and kappa accuracy	<ul style="list-style-type: none"> • Understanding of Validation • Understanding of Accuracy • Model Accuracy calculation mechanism 	M1, M7, M3	480	Class meeting, discussion, and individual work	Individual activeness, laboratory	10 %
12	Students understand the impact and needs of the type of land use unit,	<ul style="list-style-type: none"> • Description of Spatial Footprint, with the example UrbanFootprint 	M1, M3	480	Class meeting and discussion	Individual activeness	

Class meeting	Sub Learning Outcome of Course	Subject per week	Learning Method	Time estimation	Student learning experience	Criteria and scoring indicator	Scoring weight (%)
	including the follow-up process of the simulation results						
13	Students are able to formulate scenarios related to the need for planning scenario-based simulations for spatial planning needs	Planning scenario development mechanism and scenario simulation process	M1, M2, M3	480	Class meeting and discussion	Individual activeness	
14	Students are able to calculate the impact and / or needs of each type of land use on other aspects (such as economy, investment, environment, energy)	<ul style="list-style-type: none"> • Development of needs / impact assumptions based on existing references to types of land use (Standard RDTR or RTRW) 	M1, M2, M4, M7	480	Discussion and individual work	Individual activeness, laboratory, - Individual Tasks Calculation of Impact of Landuse Dynamics	10 %
15	Students understand the mechanism for selecting the best scenario from the simulation results based on the Spatial Rapid Assessment mechanism	<ul style="list-style-type: none"> • Evaluation of scenario-based simulations with a practical and fast approach • Implementation of Small Research Progress Assistance 	M1, M2	480	Class meeting and discussion	Group project report	10 %
16	Students are able to conduct small research on topics of landuse	<ul style="list-style-type: none"> • Group project 	M2, M3, M4, M5	240	Individual work	Group report and group project report	30 %

Class meeting	Sub Learning Outcome of Course	Subject per week	Learning Method	Time estimation	Student learning experience	Criteria and scoring indicator	Scoring weight (%)
	modeling independently and in groups, with the understanding that has been obtained.						

Literature

1. Pratomoatmojo, N. A. (2014) LanduseSim sebagai aplikasi pemodelan dan simulasi spasial perubahan penggunaan lahan berbasis Sistem Informasi Geografis dalam konteks perencanaan wilayah dan kota. Seminar Nasional Cities, 69–80.
2. Pratomoatmojo, N. A. (2016) LanduseSim Practice: spatial modeling of settlement and industrial growth by means of cellular automata and Geographic Information System. Urban and Regional Planning Department, Sepuluh Nopember Institute of Technology, Surabaya. Download at: <http://www.landusesim.com/>
3. Pratomoatmojo, N. A. (2018) LanduseSim Algorithm: Land use change modelling by means of Cellular Automata and Geographic Information System. IOP Conf. Series: Earth and Environmental Science 202 012020. DOI:10.1088/1755-1315/202/1/012020
4. Pratomoatmojo, N. A. (2018) LanduseSim Methods: Land use class hierarchy for simulations of multiple land use growth. IOP Conf. Series: Earth and Environmental Science 202 012023. DOI:10.1088/1755-1315/202/1/012023
5. Pratomoatmojo, N.A. (2012) Land use change modelling under tidal flood scenario by means of Markov-cellular automata in Pekalongan municipal. Universitas Gadjah Mada, Yogyakarta.
6. Sadewo, M. N. dan Buchori, I. (2018) Simulasi Perubahan Penggunaan Lahan Akibat Pembangunan Kawasan Industri Kendal (KIK) Berbasis Cellular Automata. Majalah Geografi Indonesia, Vol. 32.
7. Yazid Al-Darwish, Hany Ayad Dina Taha, Dina Saadallah (2018) Predicting the future urban growth and it's impacts on the surrounding environment using urban simulation models: Case study of Ibb city – Yemen. Alexandria Engineering Journal. Volume 57, Issue 4, December 2018, Pages 2887-2895. <https://doi.org/10.1016/j.aej.2017.10.009>
8. Santiago Linares and Natasha Picone (2018) Modelización de la expansión urbana y su impacto en el paisaje natural mediante Sistemas de Información Geográfica y Autómatas Celulares. Caso de estudio: Tandil, Argentina

9. Santiago Linares and Natasha Picone (2018) Application of Remote Sensing and Cellular Automata Model to Analyze and Simulate Urban Density Changes. Book of Urban and Remote Sensing. Taylor & Francis.
10. (book) Modelling Urban Development with Geographical Information Systems and Cellular Automata

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Lecturers	Nursakti Adhi Pratomoatmojo (NAP) Fendy Firmansyah (FF)

EVALUATION TYPE

No	Evaluation type	Weight	responsibility	Output	Timeline	Deadline
1	Review of the Final Project document related to the Implementation of CA and Land Use in various research topics	10%	Individual	Report	Week-1 until 2	Week ke-2
2	Critical Review CA related journals in landuse modeling and other related fields (various types of CAs, approaches, objectives and variables used)	10%	Individual	Report	Week -3 until 4	Week 4
3	Practical CA simulation phase I	10%	Individual	Praktical simulation	Week -5	Week 5
4	Practical CA simulation phase II	15%	Individual	Praktical simulation	Week 10	Week 10
5	Review and Practice Development of assumptions about land requirements	15%	Individual	Report	Week 11 until 13	Week 13
6	Make a resume / paper related to one of the discussion topics in landuse modeling	15%	Group	Report	Week -13 until 15	Week 15
7	Making power-point slide material (ppt) related to one of the topics discussed in the previous evaluation task (material resume)	5%	Group	PPT	Week13 until 15	Week 15
8	Small research with some help from the data provided.	20%	Group	Report	Week-12 until 16	Week 16

EVALUATION-01

Individual Task

Review of the Final Project document related to the Implementation of CA and Land Use in various research topics

Objective

Provide understanding and knowledge of the implementation of Cellular Automata techniques in the area of urban and regional planning. The individual task is to conduct a brief review of the Final Project of the ITS PWK students, so that if there are difficulties in understanding the contents of the study, it can be asked directly to the alumni (author) or related lecturer (counselor).

Task output

Report

Report Format:

Reports are written in paper format, A4 paper, Arial letters, spacing 1. Maximum page 6. No need to cover. List clear reference sources. Implementation and Collection Implementation of tasks is carried out independently, not allowed to do plagiarism, there will be sanctions for value reduction

Submission

Collected at week 2 of the lecture. Softcopy format: pdf (uploaded) and hardcopy: print. Both softcopy and hardcopy are collected at the place provided.

Evaluation Scoring Criteria

Sub Chapter	Weight	86-100	76-85	66-75	56-65	0-55
Review of the urgency and purpose of the study	20%	It is very good to provide a linear and very clear understanding of the purpose of the study	Both in providing understanding, are quite linear with the intent of the study	Understand what is discussed in the research	Less able to understand the purpose of the research conducted. Starting to give an impression there are some that cannot be explained	Unable to understand the intent of the research conducted
Review of the variable used in the modelling	25%	Very good understanding of the variables used in modeling. Provide additional explanations for variables that are better analogous.	Good at providing understanding, but not adding value to the explanations of variables	Simply provide a brief understanding of the variables	Less able to provide understanding of the variables used	Does not provide a review of the variables used.
Review of the method used	25%	Very good at explaining the methods carried out by researchers with clear language, added with new explanations	Good in explaining the methods carried out by researchers, without new explanations (following the flow of research reviewed)	Enough in explaining the method carried out by the researcher, without new explanation (following the research flow reviewed)	Less in explaining the methods carried out by researcher	Do not understand the method used by the researcher, so there is no explanation regarding this

Review of the analysis	30%	Very well in giving conclusions to the analysis, there is a new explanation in the conclusion	Good at giving conclusions to the analysis	Enough to give conclusions to the analysis, more rewrite the research findings	Less able to give opinions in reviewing research conclusions on research objectives	Not giving a review of the results of the analysis, especially the relation to the research objectives
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EVALUATION-02

Individual Task

Critical Review CA related journals in landuse modeling and other related fields (various types of CAs, approaches, objectives and variables used)

Objective:

Students are able to criticize the model in the journal, according to the understanding that has been obtained. Assess the good and bad of the model in the area of urban and regional planning, and provide input to the model. Input can be in terms of the analogy used, if it is criticized the model is still difficult.

Task Output:

Report

Report Format:

Reports are written in paper format, A4 paper, Arial letter, spacing 1. Maximum page 6.

No need for a cover

List clear reference sources.

Implementation and Collection

Implementation of tasks is carried out independently, not allowed to do plagiarism, there will be sanctions for value reduction

Submission

Collected at week 4 of the lecture. Softcopy format: pdf (uploaded) and hardcopy: print. Both softcopy and hardcopy are collected at the place provided.

Evaluation Scoring Criteria

Sub Chapter	Weight	86-100	76-85	66-75	56-65	0-55
Fitness of the substance of the discussed issue with the topic	10%	Issue fit the topic, up to date, have proper issue formulation	Issue fit the topic, does not up to date, have proper issue formulation	Substance fit the topic, up to date, but the issue formulation are not precise	Substance does not fit the topic, the issue formulation are not precise	Substance does not fit the topic, there are no issue
Discussion of the critical review	30%	Critical, Precise on giving the critical review, Appropriate on picking the up to date reference	Precise on giving the critical review, Correct on picking the up to date reference	Precise on giving critical review, but the references used are not precise	Critics have less precise, Reference used are not precise	Reviewer give inappropriate critical review and choose the wrong reference
Discussion of the critical review	60%	students are very good at explaining critically about the weaknesses and strengths of	students are sufficient in explaining the weaknesses and	Students have enough knowledge to criticize journals both in terms of	Students lack good knowledge of the topic, other relevance	Can't give criticism just write a summary of the journal

journals and being able to discuss existing theories	strengths of the journals discussed	technique and theory	in giving criticism
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EVALUATION-03

Individual Task

Practical simulation CA phase I

Objective:

Students are able to do the simulation process in LanduseSim with raster data that has been provided (data that has been processed in the ArcGIS application). At this stage students are expected to be able to master and know the functions of each button in the LanduseSim application.

Task Output:

Practical

Pratice FORMAT :

Students do practicum according to the direction of the laboratory assistant.

Submission:

During the practice

Evaluation Scoring Criteria

Sub Chapter	Weight	86-100	76-85	66-75	56-65	0-55
Independence in experimenting	30%	Very independent, there are no obstacles in its implementation, there is no doubt, being able to follow the directions given	Both in its implementation, following directions, following all directions	Enough in the implementation, there are indications of doubt in conducting the experiment	Less self-sufficient, dare not experiment as directed by the assistant	Not following directions, often asking both the assistant and his friends, not daring to do it alone
Ability to explore during experiment	30%	It is very good to explore the possibilities of practicing, there are new things that are tried by themselves	Good at exploring possibilities in practicing	Simply explore, there are some who don't follow directions	Less exploring, many did not follow directions in the trial deepening	Not exploring with, asking more questions and seeing the activities of his friends
Ability to deduce findings during practicum	40%	Very good at finding interesting facts, questions of possibilities begin to be asked	good at concluding but cannot capture interesting facts	Average in concluding the experiment	Less able to conclude practicum activities, an indication of lack of understanding of the theory	Cannot give a conclusion during the lab

EVALUATION-04

Individual Task

Practical simulation CA phase II

Objective:

Students are able to do the simulation process starting from the initial shapefile format data (ArcGIS)

to diproseees with LanduseSim and the output returned to ArcMap. In addition, students are expected to be able to interpret the simulation results obtained, and conduct analysis in the regional planner's order. At this stage also, students are expected to be able to read and follow the tutorial instructions given.

Output Tugas:

Practice

Practice format:

Students do lab work according to the tutorial module and the material given.

Submission:

Assessed on the day of H (when the lab takes place)

Evaluation scoring criteria

Sub Chapter	Weight	86-100	76-85	66-75	56-65	0-55
Independence in experimenting	30%	Very independent, there are no obstacles in its implementation, there is no doubt, being able to follow the directions given	Both in its implementation, following directions, following all directions	Enough in the implementation, there are indications of doubt in conducting the experiment	Less self-sufficient, dare not experiment as directed by the assistant	Not following directions, often asking both the assistant and his friends, not daring to do it alone
Ability to explore during experiment	30%	It is very good to explore the possibilities of practicing, there are new things that are tried by themselves	Good at exploring possibilities in practicing	Simply explore, there are some who don't follow directions	Less exploring, many did not follow directions in the trial deepening	Not exploring with, asking more questions and seeing the activities of his friends
Ability to deduce findings during practicum	40%	Very good at finding interesting facts, questions of possibilities begin to be asked	good at concluding but cannot capture interesting facts	Average in concluding the experiment	Less able to conclude practicum activities, an indication of lack of understanding of the theory	Cannot give a conclusion during the lab

EVALUATION-05

Individual Task

Review and Practice for land use development assumption

Objective:

Students are able to make assumptions in the form of quantitative calculations related to the derivative needs of each land use. With this mechanism, students are expected to be able to calculate land requirements from the results of the simulation process produced by the Land Use Team.

Output :

Report

Report Format:

Reports are written in paper format, A4 paper, Arial letter, spacing 1. Maximum page 10. No need for a cover List clear reference sources. Implementation and Collection Implementation of tasks is carried out independently, not allowed to do plagiarism, there will be sanctions for value reduction

Submission:

Collected at week 13 of the lecture. Softcopy format: pdf (uploaded) and hardcopy: print. Both softcopy and hardcopy are collected at the place provided

Evaluation Scoring Criteria

Sub Chapter	Weight	86-100	76-85	66-75	56-65	0-55
The closeness of the relationship to derivatives needed for landuse accounting	10%	Very relevant for derivative land requirement	Good and relevant for derivative land requirements	Relevant enough for land use derivative	less relevant for derivative land requirements	Irrelevant for derivative land requirement
The urgency of the proposed calculation techniques for the process of preparing spatial documents	10%	Very important, and can be applied in spatial analysis, a lot of creativity is included	Very important can be applied in spatial analysis	Adequately important and can be applied in spatial analysis	less important, and difficult to apply in spatial analysis	Not important and shouldn't be applied in spatial analysis
The depth of discussion of calculations in terms of methods, formulas and theories used	40%	Very much in discussing the calculations, the theory is very clear and powerful, there is a matter of creativity that links theory or aspect	Both in discussing the calculations, the theory is very clear and strong	Enough to discuss the calculations, but some important theories are not included	Less in discussing the calculations, less clear and unclear theory used	Do not discuss the calculations, clearly and weakly the theory used
Clarity and understanding can be implemented	40%	very good in delivering discussions in a coherent manner, including the sequence of processes carried out very clearly and in detail	both in explaining in a coherent manner, there are still many gaps that are missing information	enough to explain in a coherent manner, there are still many gaps that are missing information	less able to explain in the step by step technique proposed. Readers find it difficult to follow the proposed mechanism	Could not explain the mechanism and steps

EVALUATION-06

Group task

Make a resume / paper related to one of the discussion topics in landuse modeling:

- Cellular Automata
- Urgency of Modeling in Spatial Planning
- Cell Growth
- Spatial Drivers of Drivers
- Inhibiting Spatial Factors

- Transition Map
- Neighborhood Filter
- Model Validation and Calibration

Objective :

Students understand and are able to interpret each sub-section in the landuse modeling process. In addition, students are able to study theoretical studies related to each sub-section in cellular automata-based landuse modeling.

Task Output:

Report

Report format:

Reports are written in paper format, A4 paper, Arial letter, spacing 1. Maximum page 10. List clear reference sources. Implementation and Collection Implementation of tasks is carried out independently, not allowed to do plagiarism, there will be sanctions for value reduction

Submission:

Collected at week 15 of the lecture. Softcopy format: pdf (uploaded) and hardcopy: print. Both softcopy and hardcopy are collected at the place provided

Evaluation scoring criteria

Sub chapter	81-100	71-80	66-70	51- 65	0-50
Introduction	Empirical and theoretical facts are very complete and very relevant, the urgency of the problem is high	Complete and relevant empirical and theoretical facts, but the urgency of the problem is lacking	Empirical and theoretical facts exist but are irrelevant and not urgent	Empirical and theoretical facts are incomplete, irrelevant, not urgent	There are no empirical and theoretical facts and cannot formulate problems
Literature Review	The substance of the complete literature review by mentioning more than the specified reference, the correct synthesis of the library	complete substance of the literature review in accordance with the TOR, the synthesis of the appropriate library	Less complete but according to the topic of the task, the synthesis of the library is not quite right	Less complete and not in accordance with the topic of the assignment, improper synthesis of the library	Incomplete and incompatible and there is no library synthesis
Methodology	Data that is needed, how to obtain data and techniques for processing the right data and explained in detail	Data needed and how to get the right data but the technique of processing data is not right	How to get the right data, the data that you need is less, the data processing technique is not right	Data needed, how to obtain data and data processing techniques is not right	Data needed, how to obtain data and data processing techniques are not appropriate
Data and analysis	Complete data, precise and comprehensive analysis with appropriate interpretations	Complete data, precise and comprehensive analysis without interpretation	Complete data with inappropriate analysis	Complete data but not suitable and without analysis	Data is incomplete and not suitable and without analysis
Conclusion	The quality of conclusions is appropriate according to the results of the analysis and answers the research objectives	The quality of conclusions is appropriate according to the results of the analysis but does not answer the research objectives	The quality of conclusions is appropriate according to the results of the analysis but does not answer the research objectives	Conclusion quality is not in accordance with the analysis and does not answer the research objectives	The quality of conclusions is very inappropriate

EVALUATION-07

Group task

Making power-point slide material (ppt) related to one of the topics discussed in the previous evaluation task (material resume)

Objectives:

Students are able to make PPT materials to enrich lecture material and are able to provide illustrations, graphics, and examples of previous assignments.

Task output:

Power Point Slide

Report format:

Power-point presentation

Execution

Implementation of tasks is carried out independently in groups, not allowed to do plagiarism, there will be sanctions for value reduction

Submission:

Collected at week 16 of the lecture. Softcopy format: ppt (uploaded) and hardcopy: print. Both softcopy and hardcopy are collected at the place provided

Evaluation scoring criteria

Sub Chapter	Weight	86-100	76-85	66-75	56-65	0-55
The completeness of the material	50%	Very complete and in the material discussed, according to the reports collected	Complete material discussed, according to the reports collected	Quite complete material discussed, according to the reports collected	Less complete material discussed, according to the reports collected	Not complete material discussed, in accordance with the reports collected
completeness of graph/example/picture	20%	Very many graphs, examples, illustrations, tables etc., especially those developed independently not only from references	Many graphics, examples, illustrations, tables etc., especially those that are self-developed not only from references	Enough graphics, examples, illustrations, tables etc., most of the references displayed	Lack of graphics, examples, illustrations, tables etc., especially those developed independently not only from references	There are no graphics, examples, illustrations, tables etc., there are also minimal references
The design and layout of the PPT	30%	Very attractive design and layout	Interesting design and layout	Adequate design and layout	Less attractive design and layout in ppt	Not interesting layout and ppt

EVALUATION-08

Group task

Small research with some help from the data provided.

Objectives:

In this class students will be involved in several studies conducted by a team of lecturers and assistants. In this big assignment, students will be involved as members of the researcher to

continue the research that has been conceptualized and initiated by the lecturer team and assistant team. With this involvement, it is expected that students will get complete knowledge, especially related to land use modeling. Students will be asked to do small research with a number of topics that have been determined. This research was conducted under the supervision of accompanying lecturers and lecturer assistants

Task output:

Report

Report format:

Reports are written in paper format, A4 paper, Arial letter, spacing 1. Maximum page 10. List clear reference sources.

Implementation and Collection

Implementation of tasks is carried out independently, not allowed to do plagiarism, there will be sanctions for value reduction

The activity report is not more than 20 pages, with the content provisions as follows:

- Chapter 1. Background
- Chapter 2. Data used
- Chapter 3. Description of method
- Chapter 4. Analysis and description of output
- Chapter 5. Recommendations

Submission:

Collected at week 16 of the lecture. Softcopy format: pdf (uploaded) and hardcopy: print. Both softcopy and hardcopy are collected at the place provided

Evaluation Scoring Criteria

Sub chapter	81-100	71-80	66-70	51- 65	0-50
Introduction	Empirical and theoretical facts are very complete and very relevant, the urgency of the problem is high	Complete and relevant empirical and theoretical facts, but the urgency of the problem is lacking	Empirical and theoretical facts exist but are irrelevant and not urgent	Empirical and theoretical facts are incomplete, irrelevant, not urgent	There are no empirical and theoretical facts and cannot formulate problems
Literature Review	The substance of the complete literature review by mentioning more than the specified reference, the correct synthesis of the library	complete substance of the literature review in accordance with the TOR, the synthesis of the appropriate library	Less complete but according to the topic of the task, the synthesis of the library is not quite right	Less complete and not in accordance with the topic of the assignment, improper synthesis of the library	Incomplete and incompatible and there is no library synthesis
Methodology	Data that is needed, how to obtain data and techniques for processing the right data and explained in detail	Data needed and how to get the right data but the technique of processing data is not right	How to get the right data, the data that you need is less, the data processing technique is not right	Data needed, how to obtain data and data processing techniques is not right	Data needed, how to obtain data and data processing techniques are not appropriate
Data and analysis	Complete data, precise and comprehensive analysis with appropriate interpretations	Complete data, precise and comprehensive analysis without interpretation	Complete data with inappropriate analysis	Complete data but not suitable and without analysis	Data is incomplete and not suitable and without analysis
Conclusion	The quality of conclusions is appropriate according to the results of the analysis and answers	The quality of conclusions is appropriate according to the results of the analysis but does not	The quality of conclusions is appropriate according to the results of the	Conclusion quality is not in accordance with the analysis and does not answer	The quality of conclusions is very inappropriate

the research objectives

answer the research objectives

analysis but does not answer the research objectives

the research objectives