MODUL
COMPUTER APPLICATIONS AND ENVIRONMENTAL MODELING

MASTER PROGRAM OF ENVIRONMENTAL SCIENCE
SCHOOL OF POSTGRADUATE
DIPONEGORO UNIVERSITY

Modul Description:

Module Name	Computer Applications and Environmental Modeling
Module level, if applicable	
Code, if applicable	P-CIL-8-105
Subtitles, if any	
Course, if applicable	
Semester(s) in which the module is taught	Semester 1
Module responsible	Prof. Dr. Ir. Purwanto, DEA
Teaching Lecturer	1. Prof. Dr. Ir. Purwanto, DEA 2. Dwi P Sasongko, M.Sc 3. Dr. Istadi, ST, MT
Language	*Indonesian and English*
Relationship with curriculum	
Type of teaching, hours of contact	*Lectures: 1 x 180 minutes x 16 meetings = 48 hours/week* *Q&A: 1 x 30 minutes x 16 meetings = 8 hours/week* *Discussion: 1 x 30 minutes x 16 meetings = 8 hours/week* *Presentation: 1 x 30 minutes x 16 meetings = 8 hours/week* *Individual assignment: 60 minutes/day = 5 hours/week* *Total work for 1 semester = 150 hours = 6 ECTS*
Workload	*(Estimated) workload, divided into contact hours (lectures, exercises, laboratory sessions, etc.) and personal study, including test preparation, specified in hours,[1]and overall.*
credit points	*3 Credits / 6 ECTS*
Requirements according to the exam regulations	*Lecture attendance of at least 75%*
Recommended prerequisites	*For example, competence in…*

Modulethe desired learning objectives/outcomes	Students understand modeling techniques to understand the behavior of engineering and natural systems and find solutions to problems resulting from interactions between elements in engineered and natural systems. And also students are able to use Excel, Visual Basic, Access, SPSS, Word and Power Point application programs to process and analyze data
Fill	This course discusses the history of systems and models in environmental management. Concepts and approaches, definitions and clarifications, various systems and models and their applications in environmental management, model construction, input-output models, system-model relationships, simulations and case studies. And also study information retrieval, environmental information systems, classification of environmental information, theoretical data and its relationship with environmental information, data processing using computers. Spreadsheet application (Excel), visual basic (Programming), Access (Database), SPSS (Statistics),word processing (Word), Presentation (Power Point).
Study and examexam requirements and forms	• *Open the book and close the book* • *Multiple choice, case studies, interviews, practicals*
Media used	*Powerpoint, youtube, website*
Read reference	1. Thomannn, RV & Mueller, JA 1987. Principles of Surface Water Quality Modeling and Control, Harper & Row Publishers: New York. 2. Software books related to Excel, Word, Access, Visual Basic, Power Point. 3. Singgih, Santoso. 1999. SPSS Processes Statistical Data Professionally. Elex Media Komputindo. 4. Sarwono, Jonathan. Research Data Analysis using SPSS. PublisherAndi. 5. The Complete Guide to Microsoft Word XP for Windows. 2004. Publisher Andi. 6. Sianipar, Pandapotan Ir. 2003. Using Microsoft Office PowerPoint. Elexmedia Komputindo. 7. Maximizing Data Processing Automation Facilities and Functions with Microsoft Office Excel. PublisherAndi. 8. Visual basic programming 6.0. publisher Andi.

	9. Abdel-Magid, IM 2019. Computer Modeling Applications for Environmental Engineers. CRC Press. 10. Holzbecher, E. 2012. Environment Modeling: Using MATLAB. Jumper