COURSE PORTFOLIO

Study Program	:	MATHEMATICS - S1
Semester	:	EVEN 2023/2024
Course Code	:	23H01121503
Course Name	:	Finite Difference Method
Coordinator	:	Prof. Agustinus Ribal, S.Si.,M.Sc., Ph. D
Lecturer Team Member	:	Prof. Agustinus Ribal, S.Si.,M.Sc., Ph. D, Dr. Khaeruddin, M.Sc.

Implementation of Learning

Description of the implementation of the lecture, the suitability of what was planned in the RPS with what was done:

Number and percentage of lecturer and student attendance
(data source: monitoring the attendance of lecturers and students)

	Lecturer Attendance			Student Attendance
Finite Difference Method	Prof. Agustinus Ribal, S.Si.,M.Sc., Ph. D	:	8 times	Number of students: 19 persons Presence ≥ 80% : 18 persons (94.74 %) Presence < 80% : 1 person (5.26 %)
	Dr. Khaeruddin, M.Sc.	:	8 times	
	Total Meeting : 16 times.			

Materials/practicum provided

1. Taylor expansion for forward difference, backward difference and central difference.
2. Difference Equations for elliptic type partial differential equations. (Finite difference for elliptic partial differential equations).
3. Difference Equations for parabolic type partial differential equations. (Finite difference for parabolic partial differential equations).
4. Difference Equations for hyperbolic type partial differential equations. (Finite difference for hyperbolic partial differential equations).
5. Various boundary conditions and polar coordinates. (Various boundary conditions and polar coordinates).
6. Irregular boundary conditions. (Irregular boundary conditions).
7. Two-dimensional heat equation and cylinder coordinates. (Two-dimensional heat equation and cylinder coordinates).
8. Convection-diffusion equation. (Convection - diffusion equation).

The learning methods implemented

Meeting 1

Offline

Lecture: Other methods TM: 3x50

2-3 Meetings

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Problem (Problem based Learning)

TM: 2x1x50

4-5 Meetings

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Problem (Problem based Learning)

TM: 1x1x50

Meeting 6

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Problem (Problem based Learning)

TM: 1x1x50

Meeting 7

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Problem (Problem based Learning)

TM: 1x1x50

Meeting 8

Midterm Exam

Meeting 9

Meeting 10

Lecture: Cooperative learning (Cooperative learning)

TM: 1x2x50

Lectures: Based Learning Problem (Problem based Learning)

TM: 2x1x50

11-12 Meeting

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Project (Project-based Learning)

TM: 1x1x50

Meeting 13

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Problem (Problem based Learning)

TM: 1x1x50

14 Meetings

Lecture: Cooperative learning (Cooperative learning)

TM: 2x2x50

Lectures: Based Learning Project (Project-based Learning)

TM: 2x1x50

15 Meetings

Lecture: Cooperative learning (Cooperative learning)

TM: 1x2x50

Lectures: Based Learning Project (Project-based Learning)

TM: 1x1x50

Meeting 16

Final Semester Exam

The assessment method implemented

1. Case Studies
2. Mid Test
3. Final Test

Supplementary information (if available)

None

2. Learning Outcomes

Measurement results of CLO

Assessment and Evaluation of Student Achievement of CLO[a]

LOs that are charged to the Course	CLO	Assessment Form	Weight	Average student score (0-100)
KU1	CLO-1	Case Studies	25.00 %	72.55
KU1	CLO-1	Mid Test	25.00 %	74.23
KU2	CLO-1	Case Studies	25.00 %	72.55
KU2	CLO-1	Mid Test	25.00 %	74.23
KU2	CLO-2	Case Studies	25.00 %	72.55
KU2	CLO-2	Mid Test	25.00 %	74.23

LOs that are charged to the Course	CLO	Assessment Form	Weight	Average student score (0-100)
KK2	CLO-3	Case Studies	15.00 %	75.24
KK2	CLO-3	Case Studies	10.00 %	73.79
KK2	CLO-3	Case Studies	25.00 %	72.55
KK2	CLO-3	Mid Test	25.00 %	74.23
KK2	CLO-3	Final Test	25.00 %	73.17
KK3	CLO-4	Case Studies	10.00 %	73.79
KK3	CLO-4	Final Test	25.00 %	73.17

a: result criteria: very satisfactory if the average score is ≥ 80; satisfactory if the average score is 70 - 79.9; unsatisfactory if the average score is < 70.

Percentage of students who achieved a very satisfactory CLO score [b]

(data source: student scores per assessment according to CLOs)

CLO	% of students who achieved a CLO score of at least 80
CLO-1	68.42%
CLO-2	68.42%
CLO-3	73.68%
CLO-4	63.16%

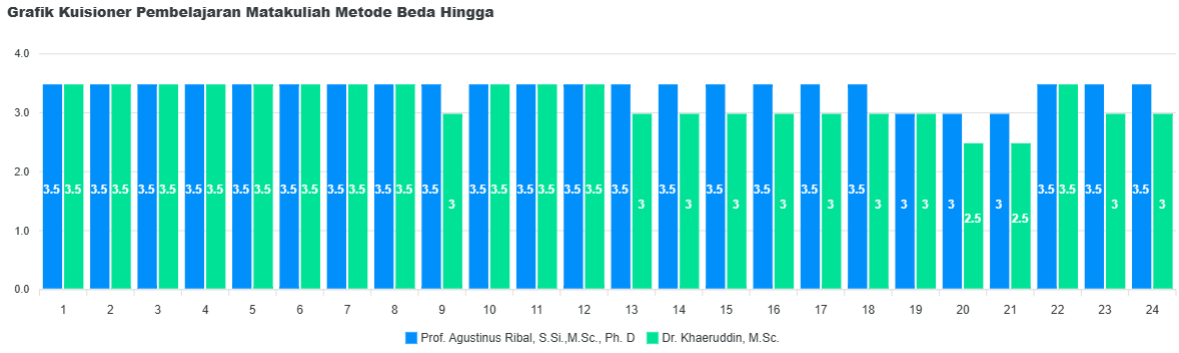
b: result criteria: very satisfactory if ≥80% of students score ≥80; satisfactory if 70%-79.9% of students score ≥80; less satisfactory if < 70% of students score ≥80.

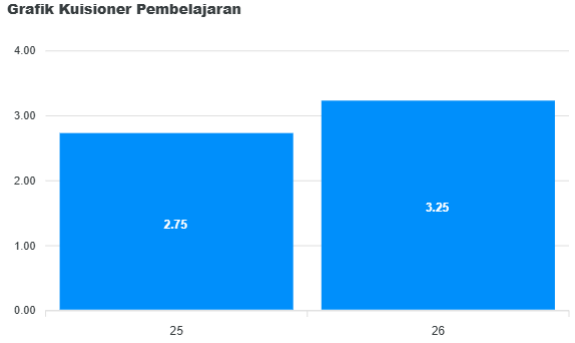
Course Grade

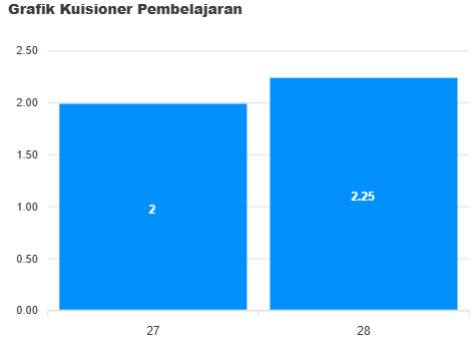
Course Grade	Number and Percentage of Students
A	1 (5.3%)
A-	13 (68.4%)
B+	3 (15.8%)
B	0 (0.0%)
B-	0 (0.0%)
C+	0 (0.0%)
C	0 (0.0%)
D	0 (0.0%)
E	2 (10.5%)

3. Learning evaluation (survey) results

(data source: items / narratives of the results of the MK evaluation questionnaire by students)







Keterangan Nilai

Pertanyaan 1-24:

- 4 : Sangat Setuju/ Sangat Baik
- 3 : Setuju / Baik
- 2 : Ragu-ragu / Cukup
- 1 : Tidak Setuju / Kurang

Pertanyaan 25 dan 26: (WE = Waktu Efektif)

- 5 : WE > 200 menit
- 4 : 180 menit < WE <=200 menit
- 3 : 120 menit < WE <=180 menit
- 2 : 60 menit < WE <=120 menit
- 1 : 1WE <= 60 menit

Pertanyaan 27:

- 3 : Lebih Banyak
- 2 : Sama
- 1 : Lebih Sedikit

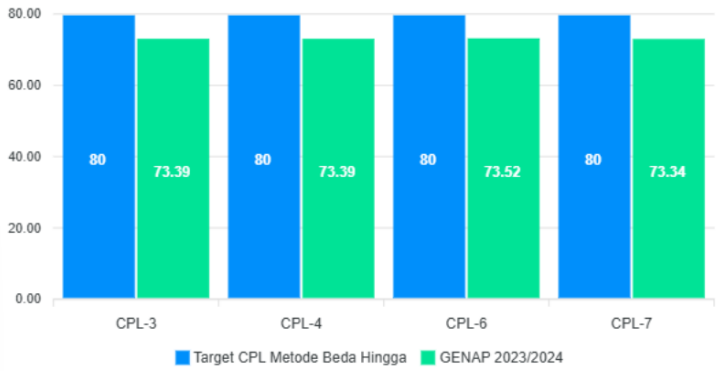
Pertanyaan 28:

- 3 : Sama
- 2 : Cukup Sesuai
- 1 : Kurang Sesuai

Informasi Pertanyaan Kuisioner

1. Dosen Menyampaikan Rancangan Pembelajaran Semester (RPS) dan Kontrak Perkuliahan di awal Perkuliahan dengan Jelas
2. Dosen Menjalankan Proses Pembelajaran yang berpusat pada mahasiswa (Student Centered Learning)
3. Dosen Menyiapkan materi Pemebelajaran dan sumber daya pensukung pwmbelajaran (diktat, slide, kasus, tugas, bahan ujian, dsb)
4. Dosen menjelaskan materi dengan baik dan jelas
5. Dosen memberikan materi setiap minggu sesuai dengan Rancangan Pembelajaran Semester (RPS) matakuliah
6. Dosen mempunyai kepedulian dan membantu mahasiswa dalam pemaham penguasaan suatu materi
7. Dosen Memberikan Penilaian dengan jelas dan sesuai dengn kontrak perkuliahan yang telah disepakati
8. Dosen memberikan umpan balik dengan memberikan komentar secara lengkap
9. Saya memahami materi kuliah setelah menyelesaikan perkuliahan ini
10. Matakuliah yang diberikan menstimulasi kemampuan intelektual saya
11. Tingkat kehadiran saya dalam matakuliah ini sangat tinggi (lebih dari 80% pertemuan)
12. Dosen menggunakan lebih dari satu metode penilaian (Assessment Metho
13. Jadwal matakuliah telah diinformasikan di SIM secara jelas sebelum perkuliahan dimulai
14. Dosen memberikan kuliah sesuai dengan jadwal kuliah yang telah ditetapkan
15. Dosen hadir tepat waktu sesuai dengan jadwal kuliah yang telah ditetapk
16. Dosen menyelesaikan perkuliahan tepat waktu sesuai dengan jadwal kuliah yang telah ditetapkan
17. Tersedia buku acuan/modul/ringkasan materi/slide matakuliah untuk semua materi yang diberikan
18. Buku acuan/modul/ringkasan materi/slide matakuliah yang diberikan berr dan uptodate dangan perkembangan yang ada
19. Selama Kualiah daring, fasilitas perkuliahan cukup memadai
20. Saya menggunakan SIKOLA sebagai wadah pembelajaran
21. Layanan Perpustakaan Prodi/Departemen/Fakultas/Universitas sangat me dalam proses pembelajaran
22. Beban sks matakuliah ini sudah sesuai dengan kompetensi yang akan dicapai (Catatan : 1 sks setara dngan 170 menit kegiatan belajar setiap pekan per semester)
23. Saya menggunakan SIKOLA sebagai wadah pembelajaran
24. Layanan Perpustakaan Prodi/Departemen,Universitas sangat membantu proses pembelajaran
25. Rata-rata Waktu Efektif (dalam menit) yang anda habiskan dalam seminggu (di luar jam perkuliahan)untuk menyelesaikan tugas terstrukturpada matakuliah ini
26. Rata-rata Waktu Efektif (dalam menit) yang anda habiskan dalam seminggu (di luar jam perkuliahan) unuk belajar mandiri pada matakuliah ini
27. Dibandingkan dengan matakuliah yang lainnya, jumlah waktu yang anda h khusus untuk matakuliah ini
28. Alokasi waktu yang digunakan untuk menyelesaikan tugas yang diberikan matakuliah ini

Grafik CPL MK (Metode Beda Hingga)



Hasil Pengukuran CPL MK Metode Beda Hingga

4. Analysis and Reflection

Analysis and reflection

Analysis

Analysis of the data shows that the performance of the Finite Difference Methods course is at a good level, but has not succeeded in achieving the expected targets. Learning outcomes in all aspects measured are consistently slightly below the established standards. The pattern of performance demonstrated is very even and stable across learning outcomes, with no areas being significantly weaker or stronger than others. This indicates that the challenges faced are comprehensive and not focused on a particular topic.

Reflection

This good and stable performance reflects that the learning foundation in this course is strong enough. The challenge is not to correct significant weaknesses, but rather to push achievements from 'good' to 'very good' levels to meet target standards. Because the problem is widespread, the necessary follow-up will likely not be specific to one topic, but rather will be general improvement strategies that can lift overall performance, such as strengthening practice sessions or adding more in-depth case studies to all material. The focus is on optimization to achieve the expected level of excellence.

5. Follow-up Plan

In response to the good but consistently slightly below target achievements in the Finite Difference Methods Course, the follow-up plan will not be a fundamental improvement, but will focus on a comprehensive optimization strategy. This step will include strengthening practice questions and case study sessions to deepen practical understanding, as well as carrying out light calibration of the evaluation system to further encourage students to reach a level of excellence. The aim is to provide the final push needed so that this already solid performance can be lifted uniformly to exceed predetermined target standards in the next evaluation period.

6. Follow-up results on the previous semester's evaluation

Following up on the findings of the previous semester's evaluation for the Finite Difference Methods Course, which identified performance that was good but

consistently slightly below target, an action plan focusing on optimization through strengthening practice sessions and case studies has been implemented. Needs to be reapplied for the next semester

Makassar, 21 Oktober 2025

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