UNIVERSITAS
GADJAH MADA

Sharing OBE DTETI

PSPSTE dan PSPSTIF – General Accreditation

PSPSTB – Provisional Accreditation

Yogyakarta, 17 November 2022

Perjalanan OBE DTETI

- 2016 : Kurikulum baru berbasis OBE
- 2016 akhir: Menerima Mandat Universitas untuk menyiapkan ABET
- 2017 Awal: Menyiapkan akreditasi IABEE
- 2017 Akhir: Menyiapkan akreditasi BAN PT
- 2018: Mendapatkan Akreditasi BAN PT
- 2018: Mendapatkan Akreditasi IABEE
- 2019: Mendapatkan Akreditasi ABET
- Mendapatkan akreditasi unggul dengan konversi Akreditasi ABET
- 2021 Kurikulum baru dengan tambahan MBKM
- 2022 Reakreditasi IABEE

IABEE

BAN-PT

ABET Engineering Accreditation Commission

Akreditasi IABEE dan ABET TE dan TIF

- Akreditasi ABET
  - berlaku sampai September 30, 2024
  - Permohonan perpanjangan January 31, 2023
  - Tidak akan diperpanjang
- Akreditasi IABEE berlaku sampai
  - Berlaku sampai 31 Maret 2023
  - Permohonan perpanjangan 2022 (tahun depan)
  - Kick-off Januari
- Akreditasi Unggul BAN PT
  - Berlaku sampai 30 September 2024
  - Mengikuti akreditasi ABET

WASHINGTON ACCORD (WA) SIGNATORIES

- Korea - Represented by Accreditation Board for Engineering Education of Korea (ABEEK) (2007)
- Russia - Represented by Association for Engineering Education of Russia (AEER) (2012)
- Malaysia - Represented by Board of Engineers Malaysia (BEM) (2009)
- China - Represented by China Association for Science and Technology (CAST) (2016)
- South Africa - Represented by Engineering Council South Africa (ECSA) (1999)
- New Zealand - Represented by Engineering New Zealand (EngNZ) (1989)
- Australia - Represented by Engineers Australia (EA) (1989)
- Canada - Represented by Engineers Canada (EC) (1989)
- Ireland - Represented by Engineers Ireland (EI) (1989)
- Hong Kong China - Represented by The Hong Kong Institution of Engineers (HKIE) (1995)
- Chinese Taipei - Represented by Institute of Engineering Education Taiwan (IEET) (2007)
- Singapore - Represented by Institution of Engineers Singapore (IES) (2006)
- Sri Lanka - Represented by Institution of Engineers Sri Lanka (IESL) (2014)
- Japan - Represented by JABEE (2005)
- India - Represented by National Board of Accreditation (NBA) (2014)
- United States - Represented by Accreditation Board for Engineering and Technology (ABET) (1989)
- Turkey - Represented by Association for Evaluation and Accreditation of Engineering Programs (MÜDEK) (2011)
- United Kingdom - Represented by Engineering Council United Kingdom (ECUK) (1989)
- Costa Rica - Represented by Colegio Federado de Ingenieros y de Arquitectos de Costa Rica (CFIA) (2020)
- Mexico - Represented by Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI) (2022)
- Signatory status approved at IEAM 2022 on the basis of a virtual review, approval subject to conditions set out by the Washington Accord meeting.
- Pakistan - Represented by Pakistan Engineering Council (PEC) (2017)
- Peru - Represented by Instituto de Calidad y Acreditacion de Programas de Computacion, Ingenieria y Tecnologia (ICACIT) (2018)
- Indonesia - Represented by Persatuan Insinyur Indonesia (PII) (2022)

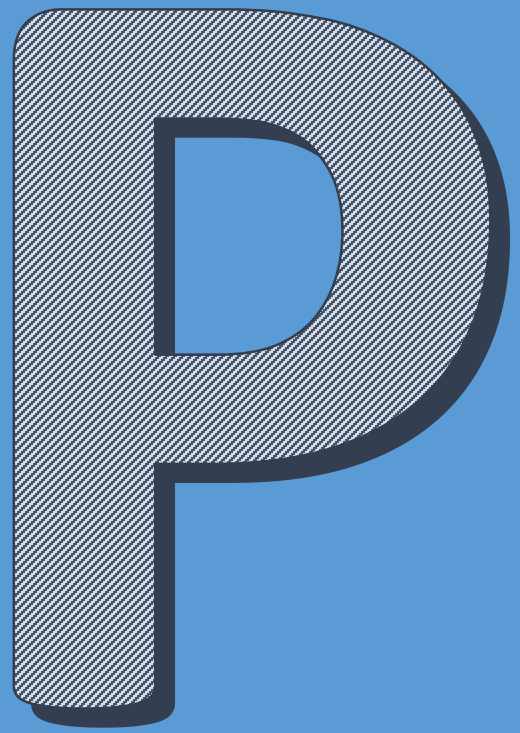
Sekilas tentang OBE

- OBE adalah suatu konsep/teori Pendidikan dimana pengajaran dan pembelajaran selalu mengacu kepada suatu target luaran/outcomes yang sudah didefinisikan di awal.
- Outcomes adalah sekumpulan nilai atau karakter yang harus dipunyai oleh mahasiswa atau pembelajar setelah menyelesaikan pembelajaran
- Merupakan Forward-backward process
- Setiap proses Edukasi dalam OBE memiliki tujuan yang direncanakan, dilaksanakan, dievaluasi, dan disempurnakan
- Dilakukan secara bertahap (*incremental*) dan ber-evolusi (*iterative*) menuju perbaikan

Continuous Improvement (ABET)

Plan-Do-Check-Action/ PDCA (IABEE)

PDCA DTETI (current condition)



PLAN

Plan/Yang harus dilakukan

- Menentukan siapa stakeholders (program constituency) kita
- Merumuskan Program Educational Objectives (PEO) Bersama stakeholders
- Merumuskan Student Outcomes (SO)
- Memastikan PEO dan SO disampaikan dengan baik kepada civitas akademika dan masyarakat luas

Plan/Program Stakeholders DTETI

- ~~Students~~
- Alumni
- Advisory Board
- **Faculty (Dosen)**
- Users/Employers

Advisory Board

PEO Statements (new statement)

- After five years, graduates should demonstrate:
  - **PEO1 (C[h]aracter)**: Having good spirit of leadership, high standard ethics, and lifelong-learning to maintain excellency in innovation.
  - **PEO2 (Careeer)**: Be successful in technical or professional career characterized by having integrity in the aspect of Electrical Engineering/Information engineering/Biomedical Engineering competency or related field by fulfilling professionalism, effective communication, and universal value of humanity.

http://sarjana.jteti.ugm.ac.id/tentang-dteti/visi-misi#elektro.html

Two cars!

SO

Memenuhi Standar Pendidikan Insinyur (*Graduate Attribut*)

- *Professional and Ethical Responsibilities*
- *Engineering Awareness and Society*
- *Sustainable Learning*
- *Modern Tools and IT Utilization*
- *Knowledge of Contemporary and Issues*
- *Effective Communication*
- *Individual and Teamwork*
- *Fundamental and Engineering Knowledge*
- *Development of Engineering Solution*
- *Engineering Design*
- *Data and Experiment*

Memenuhi Standar Kompetensi Profesional (*Professional Competencies*)

PEO

Two Cars

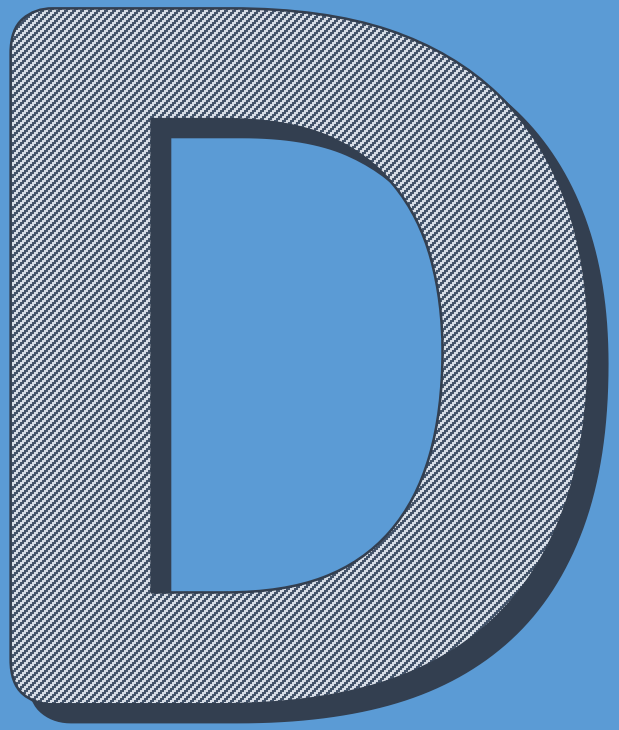
- Characthers
- Career

Values

ΣTHOS

- Excellence
- Teamwork
- Harmony
- Optimistic
- Smart

for Integrity



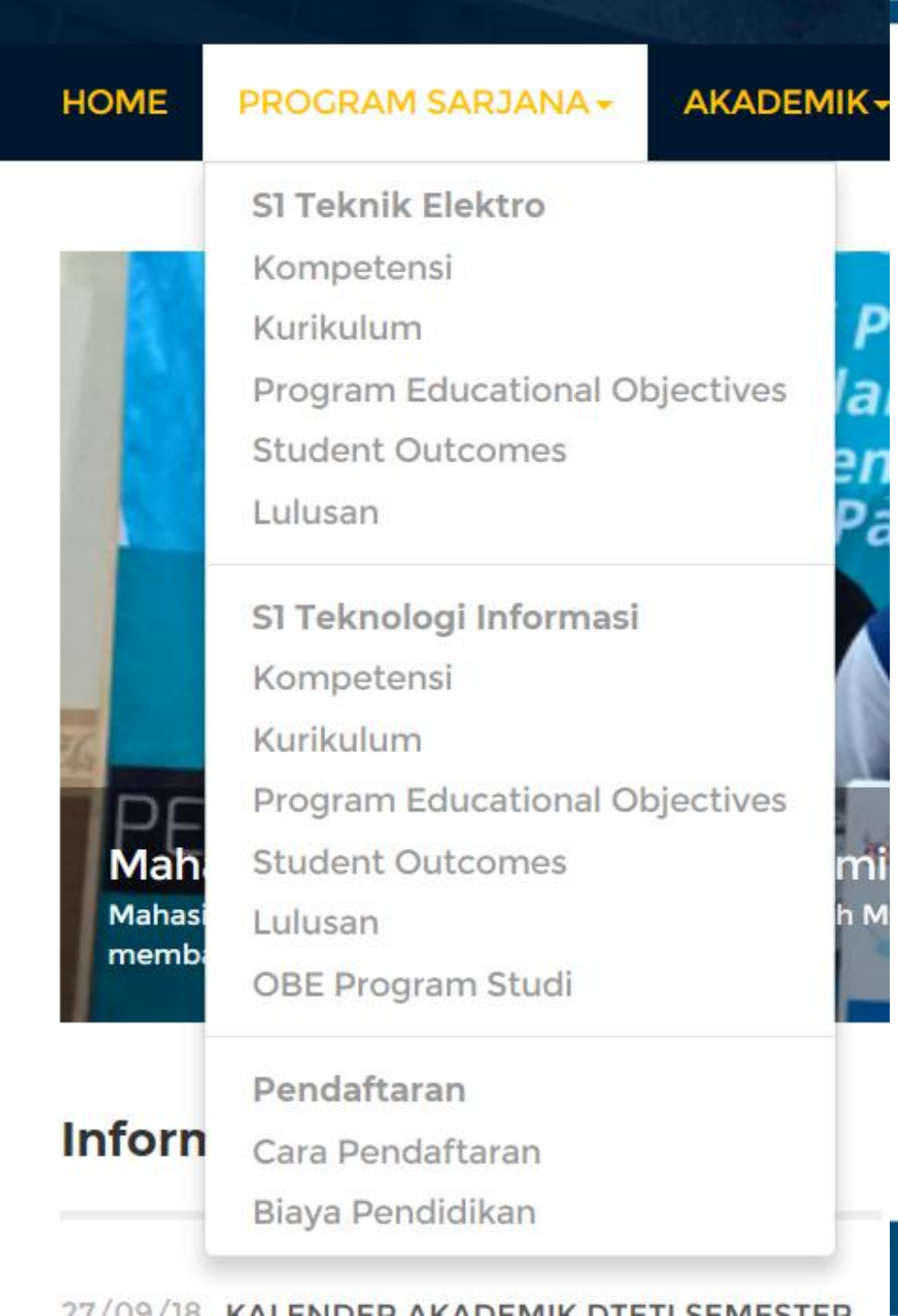
DO

Do/yang harus dilakukan

- Merumuskan kurikulum
- Memastikan kurikulum sesuai dengan kriteria Washington Accord
  - Kurikulum Sarjana Teknik berorientasi kepada penyelesaian complex engineering problems –via capstone project dan skripsi
  - Kurikulum Sarjana wajib memenuhi kriteria umum dan kriteria disiplin
  - Kriteria umum : kecukupan basic science dan teknologi informasi
  - Kriteria khusus:
    - basic science minimum 20% (30 SKS) dengan minimum 1 SKS praktikum sains dasar
    - Kecukupan mata kuliah keteknik-elektroan yang sesuai → Signal and System, Computing Science
    - Kecukupan mata kuliah general education
    - Terdapat mata kuliah yang merupakan proyek desain utama (capstone design project)

Do/Mengumumkan PEO, SO dan kurikulum

PEO, SO dan Kurikulum DTETI bebas diakses untuk umum
Website Sarjana DTETI: https://sarjana.jteti.ugm.ac.id



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Dosen dan Civitas harus paham

- Program Educational Objective (PEO) → Departemen.
  - Apa yang departemen / prodi harapkan setelah mahasiswa lulus dan menjadi alumni >5 tahun
- Student Outcome (SO) → Prodi
  - Apa yang prodi harapkan sesaat setelah mahasiswa itu lulus 1-5 tahun
- Learning Outcome (LO) → Faculty Member
  - Apa yang dosen harapkan pada saat mahasiswa tersebut lulus mata kuliah
- Kunjungi http://sarjana.jteti.ugm.ac.id

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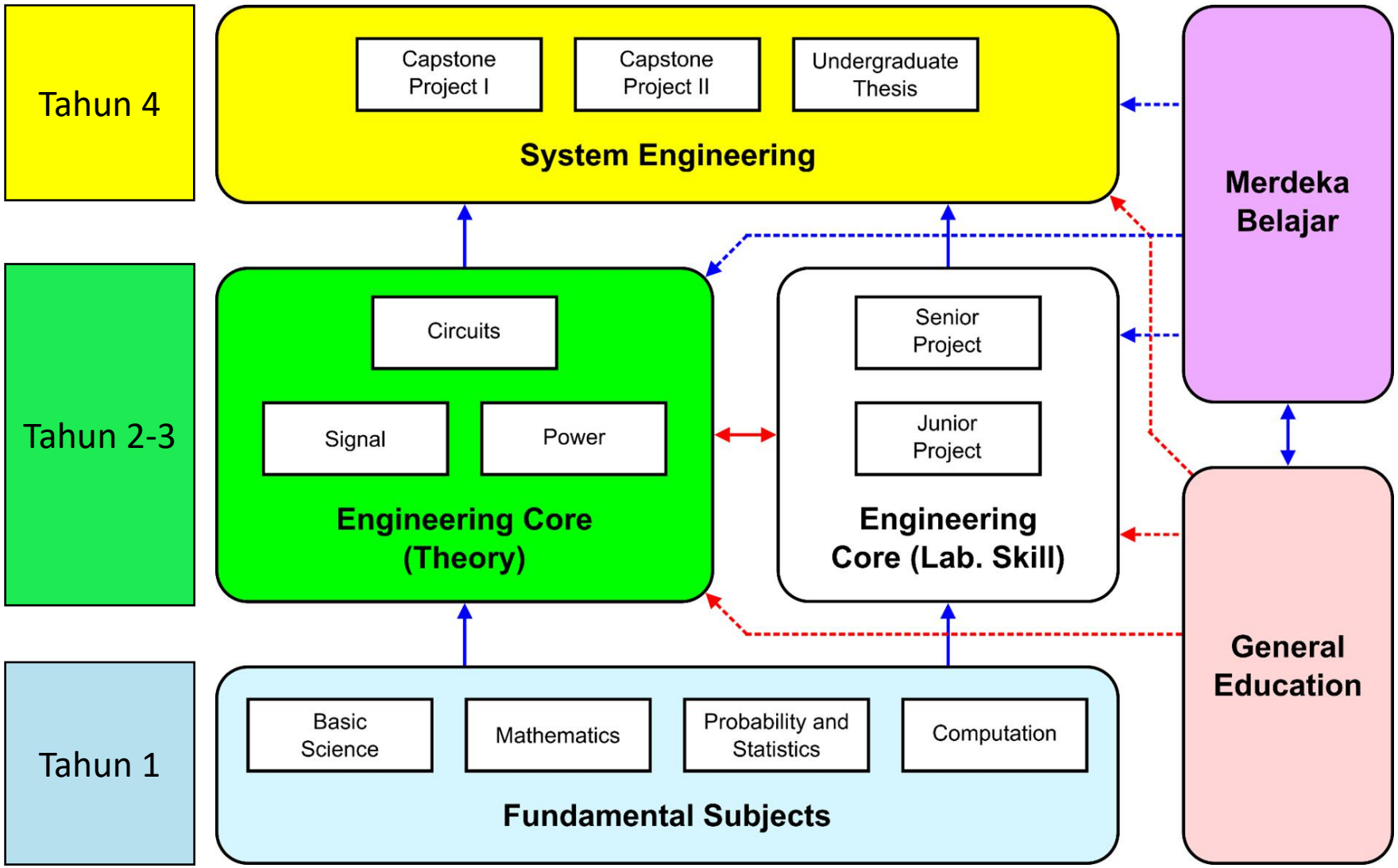
Gambaran Umum

- Mata kuliah pendidikan umum, KKN, capstone, skripsi dan MBKM

- Mata kuliah *core engineering* untuk tiap prodi
- Mata kuliah ***breadth*** & ***depth***
- Mata kuliah MBKM

- Fokus pada sains dasar
- Makul bersama prodi TB,TE&TIF



Konsep Praktikum, Capstone, dan Skripsi

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Semester 2
Praktikum progdas
1 SKS

Semester 3
Praktikum sains dasar
1 SKS

Semester 5
Proyek Junior
2 SKS

Semester 6
Proyek Senior 3 SKS
Proyek Perancangan 1 (Capstone-1)
2 SKS

Semester 7
Proyek Perancangan 2 (Capstone-2)
2 SKS
CAPSTONE EXPO

Semester 8
Skripsi & pendadaran
4 SKS

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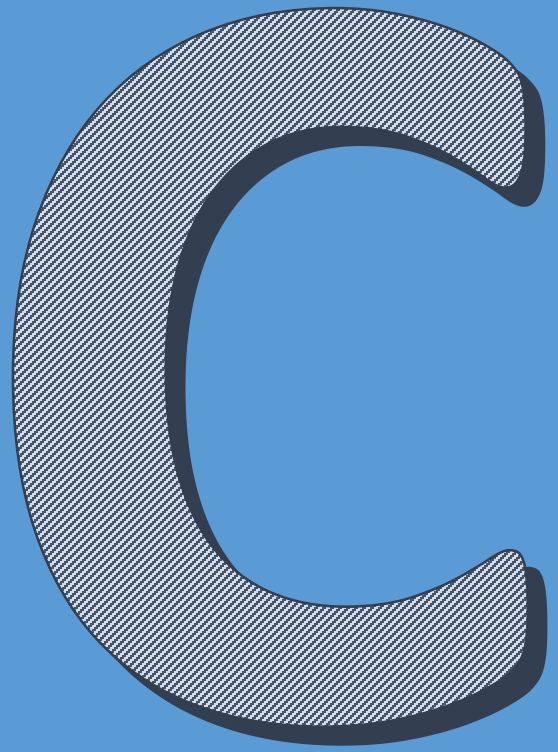
Open House dan Capstone Expo DTETI

25-26 November 2022 @SGLC Plaza FT UGM



CHECK

Check/Asesmen luaran

- Menyiapkan asesmen terhadap luaran yang sudah didefinisikan
  - PEO → tidak wajib, tapi sudah dilaksanakan via survey/indirect
    - Dilakukan oleh departemen Bersama Advisory board
  - SO → utama, harus ada dan terencana dengan baik → selalu disempurnakan
    - Dilakukan oleh Prodi, boleh dilakukan oleh tim/satgas
  - LO/Course learning outcomes → Nilai mata kuliah tidak boleh gelondongan
    - Dilakukan oleh Bapak/Ibu dosen
- Asesmen terhadap luaran harus menjadi budaya mutu

Setiap Prodi punya strategi yang unik

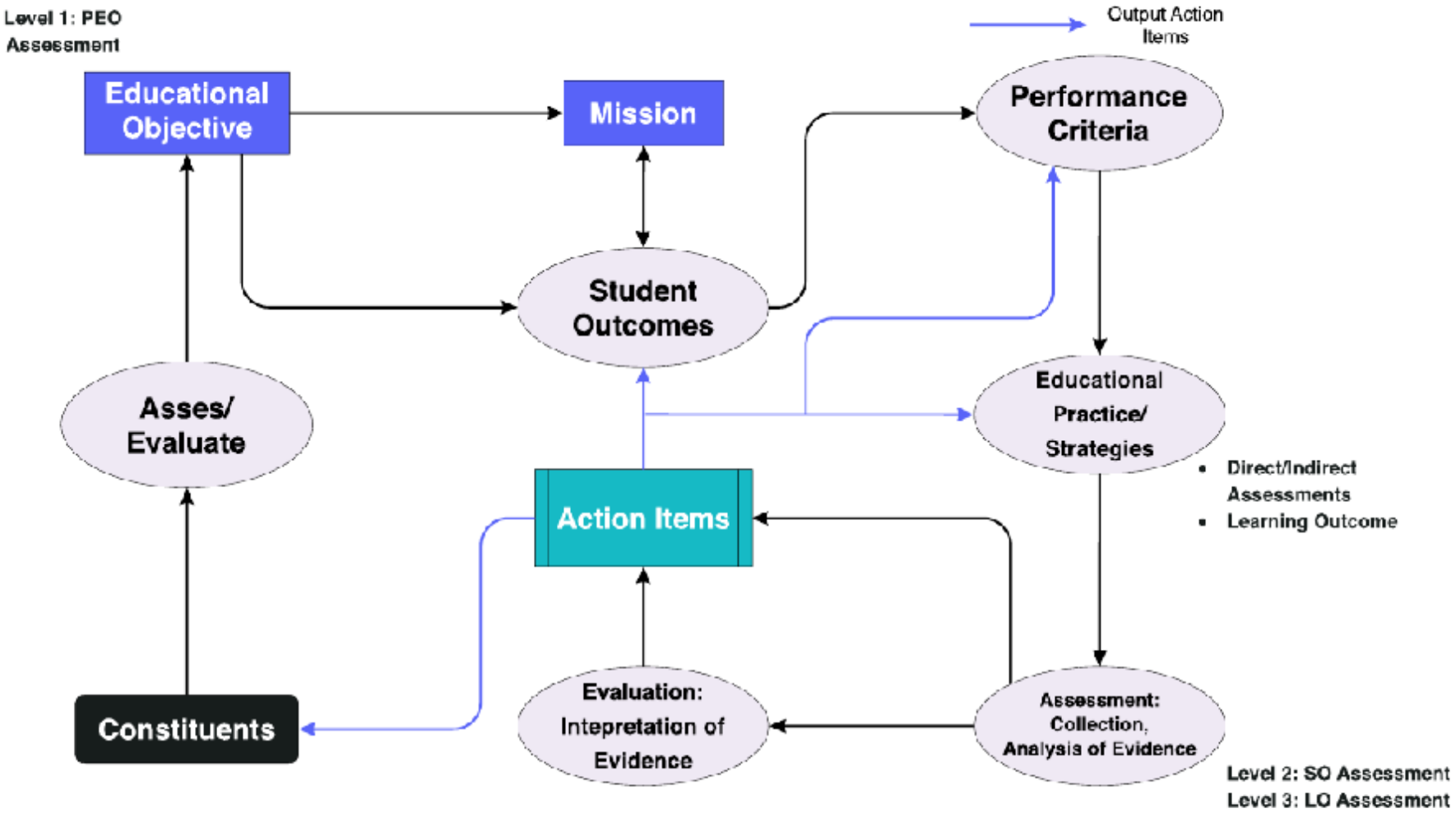
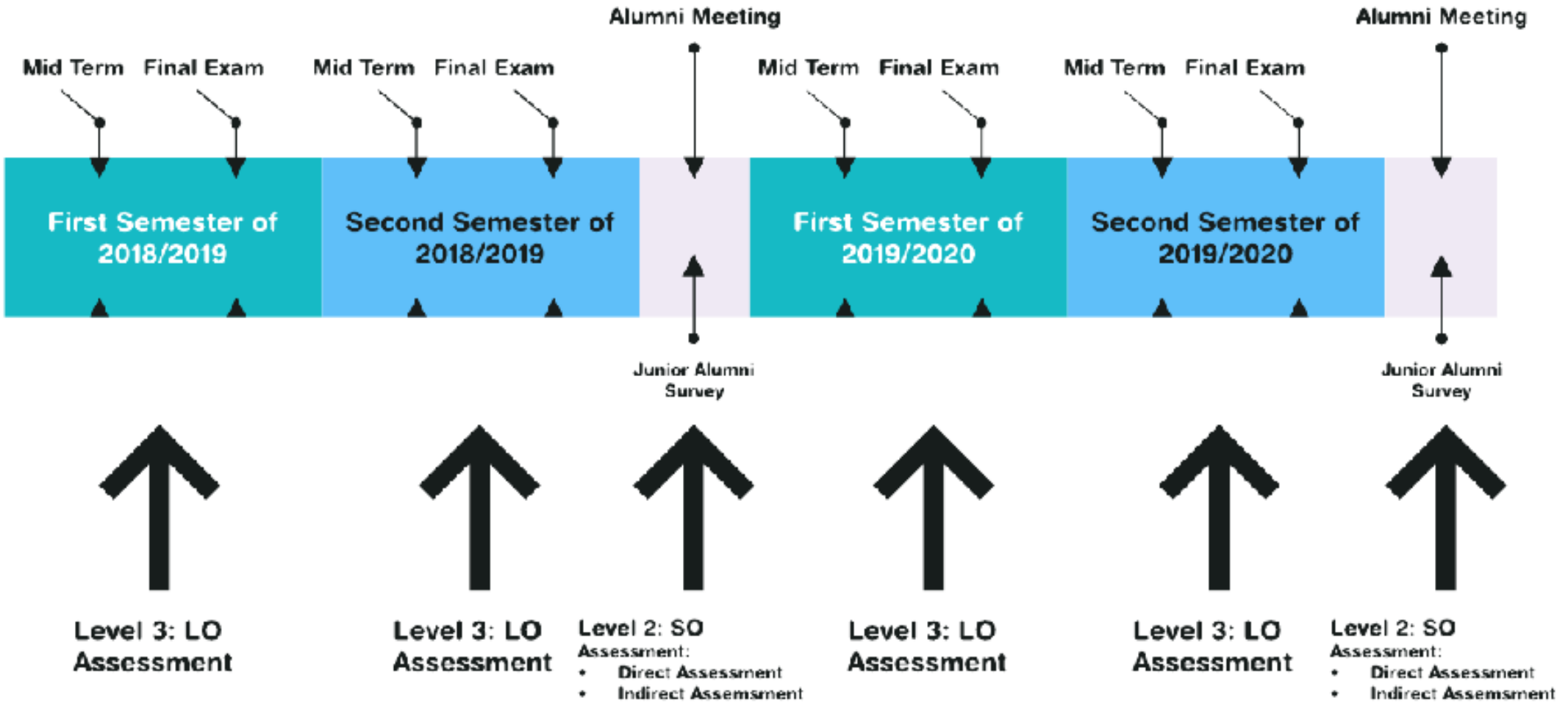


Figure 4-1 Assessment process implemented in PSPSTE

Kalender Asesmen



Assessment (current condition)

- Mengukur LO
  - Direct Assessment: Ujian, Tugas, dan Kuis → melalui ABETSYS
  - Indirect Assessment: tidak wajib tapi bisa dilakukan misalnya menyebarkan survey tentang pemahaman mahasiswa, survey kepada industry terhadap mahasiswa KP
- Mengukur SO
  - Direct assessment: agregasi kumpulan nilai LO yang mengarah ke sebuah SO melalui rubrik key performance indicator (KPI)
  - Indirect assessment: Exit Survey, Survey Alumni Muda (alumni <5 tahun)
- Mengukur PEO
  - Indirect assessment: Survey Alumni Senior (alumni > 5 tahun), Employer (perusahaan pemberi kerja)

Indirect assessment

- Survey lulusan muda
  - Assessment SO
- Survey lulusan (tidak muda)
  - Assessment PEO, Visi, Kurikulum
- Survey pengguna
  - Assessment SO, PEO, Kurikulum

Assessment level mata kuliah

- (seharusnya semua) mata kuliah dinilai dengan **rubric**
- Rubric akan secara langsung menilai LO
- Nilai LO akan dievaluasi mandiri oleh dosen
- Nilai mata kuliah tidak berhubungan secara langsung dengan nilai LO
  - Bapak-Ibu dosen tidak perlu khawatir jika mahasiswa tidak lulus
  - Nilai akhir mata kuliah akan ditentukan oleh Abetsys
- Tidak lagi menggunakan distribusi normal tapi capaian LO berbasis rubrik
- Pembobotan nilai bebas menurut dosen pengampu (misalnya: 90% adalah nilai dari LO, 10% adalah nilai terkait attitude dll)
- Soal ujian dievaluasi dan harus sesuai dengan LO yang dijanjikan

Asesmen level mata kuliah (semua dosen)

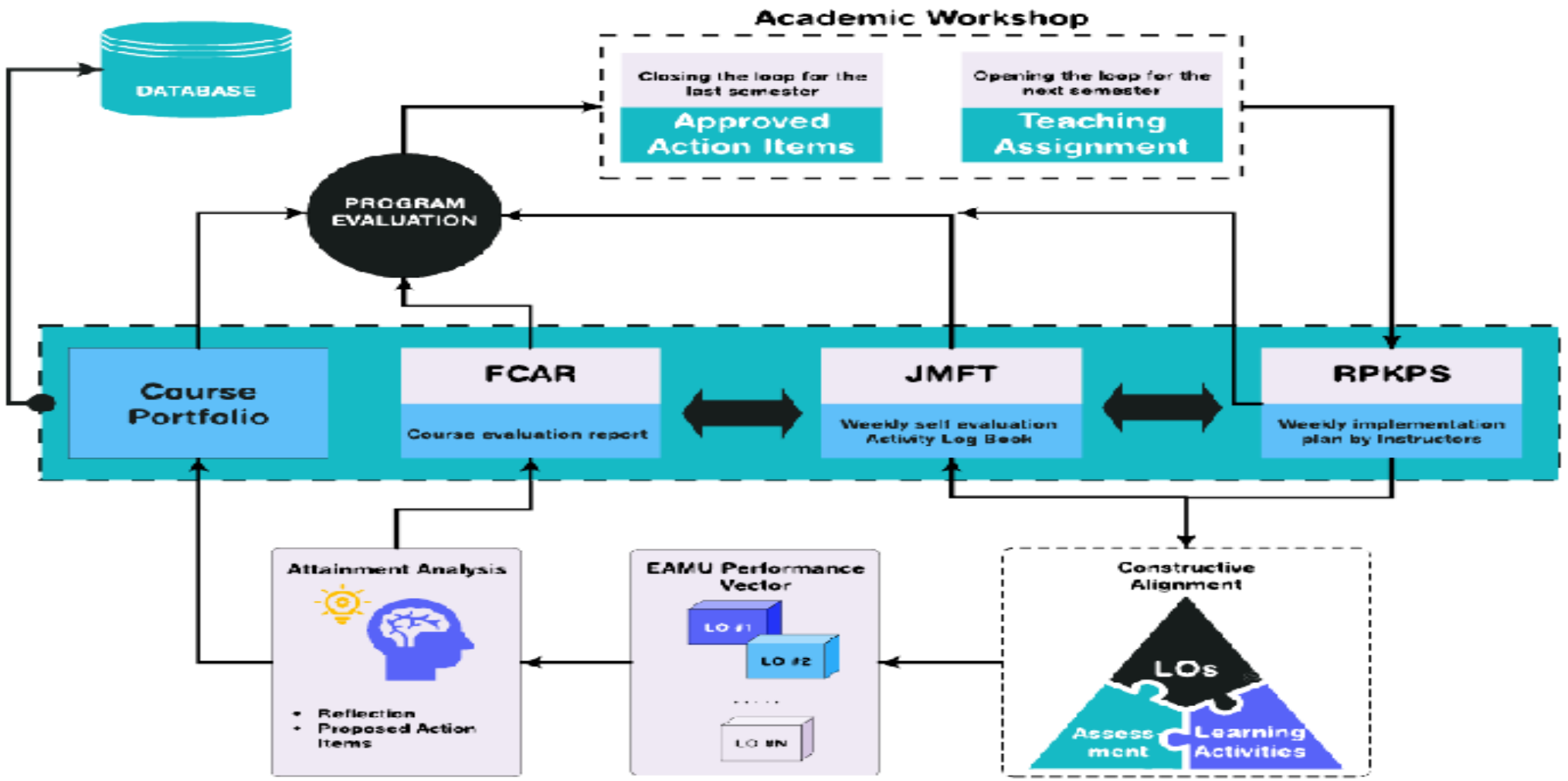


Figure 4-3 Course assessment process

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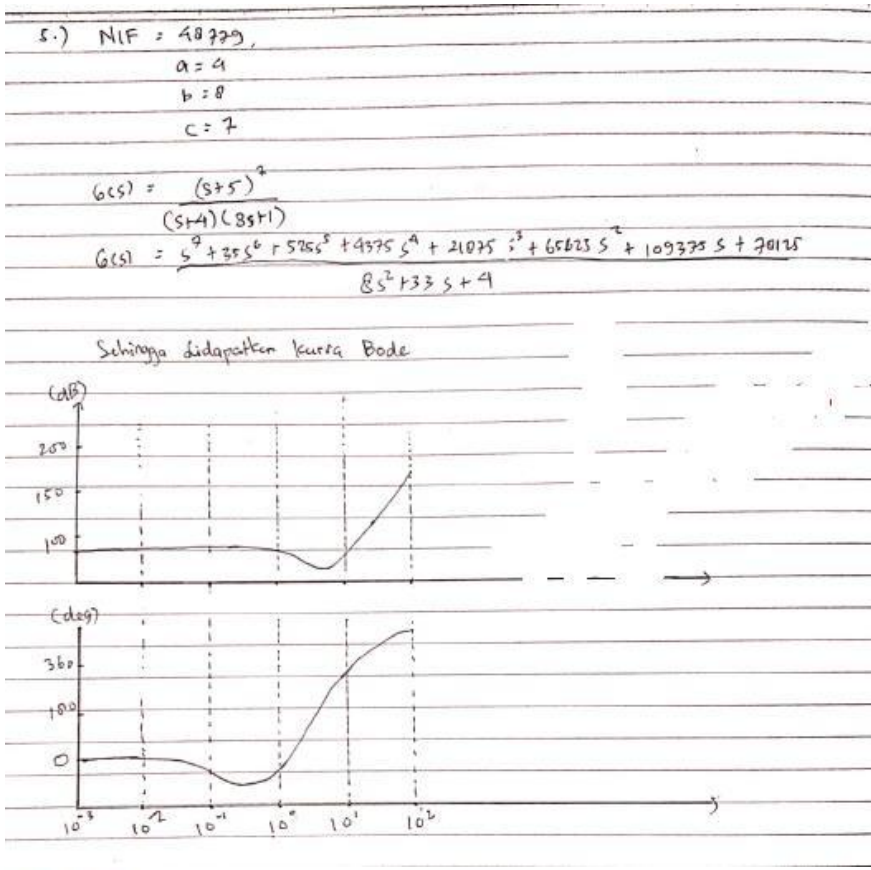
Contoh dalam suatu ujian

5. [LO3] Sketlah kurva Bode bagian magnitude, atau Root locus dengan H(s)=1 (Pilih satu saja Bode atau root locus) untuk transfer function berikut ini (a,b,c adalah digit ke 1,2, dan 3 dari NIM Fakultas saudara!):

$$G(s) = \frac{(s+5)^c}{(s+a)(bs+1)}$$



A (85-100)	B (70-84)	C (61-69)	D (50-60)	E (0-49)
1. Kurva benar 2. Proses benar dan rinci	1. Kurva mendekati benar 2. Proses terdapat kesalahan kecil tetapi rinci	1. Kurva mempunyai banyak kesalahan 2. Proses banyak terjadi kesalahan	1. Kurva salah 2. Tidak menjelaskan prosesnya	Tidak mampu menggambar kurva apa pun

ECTED

Course level assessment: Pemberian nilai A-E (theoretically)

Nilai A

no conceptual or

procedural error,

Nilai B

no conceptual but limited number of procedural errors,

Nilai C

minimal/no significant errors for both conceptual and procedural,

Nilai D

minimal error on the conceptual part but significant error on the procedural part,

Nilai E

fail to demonstrate conceptual part significantly.

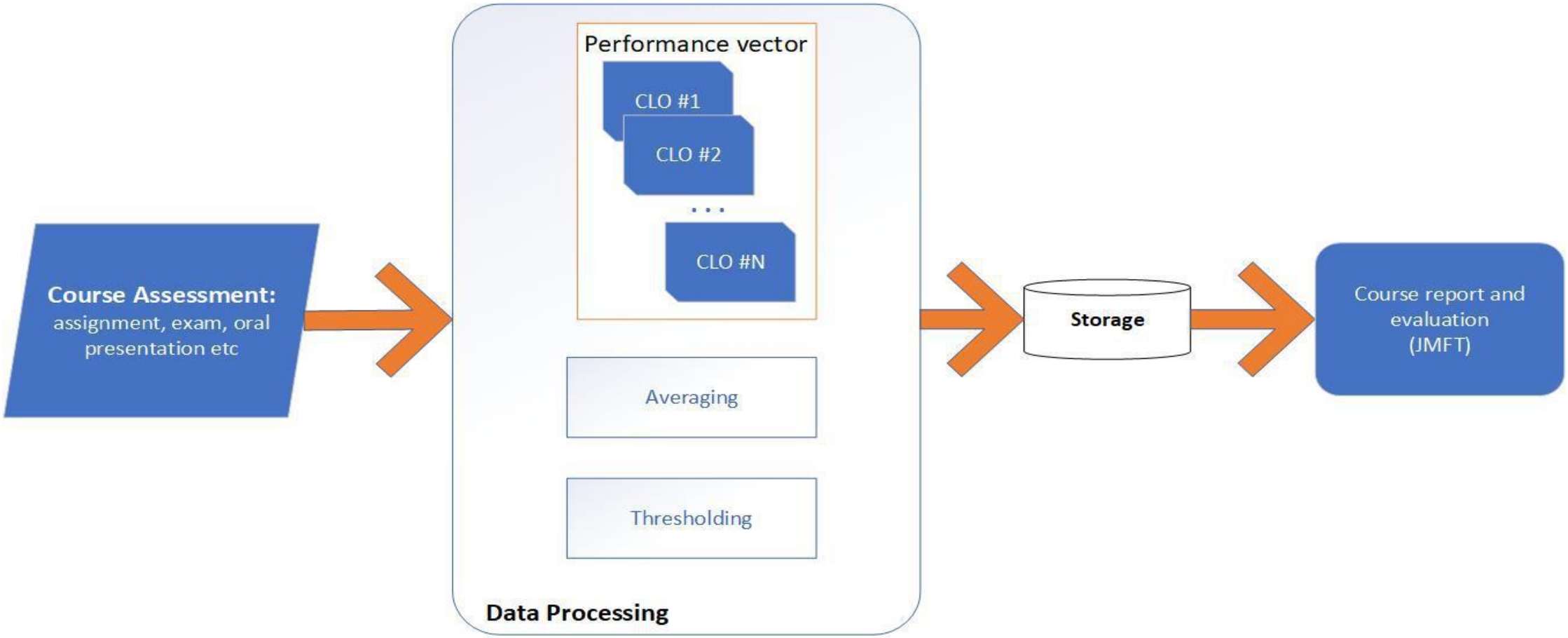
Keterangan Course Level Assessment

- Nilai diberikan per LO
- Nilai akhir adalah rerata LO (nilai akhir tidak krusial di dalam OBE)
- Setiap LO bisa di-assess dengan banyak cara

Midterm and Final written Exam
Quizzes and homework
Student reports
Student presentation
Deliverable student project results

ABETSYS

- Dosen mengisikan hasil assessment melalui ABETSYS
- Apa yang dilakukan ABETSYS kemudian?



Thresholding dan Averaging

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- Digunakan untuk menentukan berhasil/tidaknya suatu LO
- Terdapat di Abetsys, tab evaluasi

Assesement Plan	Averaging Average	Student that Exceed Criteria	Thresholding Student that Meet Criteria	Student that Unmeet Criteria	Learning Outcome Performance Index	Failure Review	Planned Improvement
LO1	79.55	20	30	4	PASSED		
LO2	52.93	10	32	12	FAIL	The LO is too abstract	Need real examples
LO3	54.71	16	28	10	FAIL	The topics need more practice	More home works are required
LO4	80.74	48	2	4	PASSED		
LO5	n/a	n/a	n/a	n/a	Not Available		
LO6	n/a	n/a	n/a	n/a	Not Available		

Failure review dan planned improvement sangat penting untuk IABEE (Preview)

Learning Outcome	Average	Student that Exceed Criteria	Student that Meet Criteria	Student that Unmet Criteria	Learning Outcome Performance Index	Failure Review	Planned Improvement
LO1	60.44	20	65	19	FAIL	Student confuses with the abstract concept of OO	Improving the concept through case study
LO2	71.29	65	38	1	PASSED		
LO3	65.57	36	65	3	PASSED		
LO4	60.57	30	59	15	FAIL	Student performed worse on coding session	Adding online tutorial to improve coding skill

SO Assessment

Assessment SO

- Yang melakukan assessment SO adalah Prodi (Kaprodi-sekprodi-tim iabee)
- Menggunakan Key Performance Indicators (KPI/PI)
- Menggunakan hasil Abetsys
  - Dulu cukup sampling (sekarang tidak sampling lagi)
  - Dulu dipilih MK yang siklusnya lengkap
- Tidak semua SO bisa diukur dari sample mata kuliah dengan baik
- SO yang menunjukkan soft skill dan behavior memerlukan pembanding dengan cara indirect

Performance Indicators (Tabel 4-1)

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Capaian Pembelajaran/ Students Outcomes	Performance Indicator Tahun 1 dan 2	Performance Indicator Tahun 3 dan 4	Catatan Terkait Pengukur PI
Fundamental and Engineering Knowledge	Menjelaskan fakta spesifik dari matematika, sains, atau teknik yang diperlukan untuk menyelesaikan problem kerekayasaan (engineering problem) (PIA1)	Menjelaskan fakta spesifik dari matematika, sains, atau teknik yang diperlukan untuk menyelesaikan problem kerekayasaan yang kompleks (complex engineering problem) (PIA2)	Direct assessment melalui mata kuliah dasar dan mata kuliah sains rekayasa (engineering sciences)
Development of Engineering Solution	Mengimplementasikan fakta spesifik dari matematika, sains, atau teknik yang diperlukan untuk mengidentifikasi problem kerekayasaan (engineering problem) (PIB1)	Mengimplementasikan fakta spesifik dari matematika, sains, atau teknik yang diperlukan untuk menyelesaikan problem kerekayasaan yang kompleks (complex engineering problem) (PIB2)	Direct assessment melalui mata kuliah rekayasa teknik elektro, terutama mata kuliah Proyek Junior dan Proyek Senior

PI (2)

Engineering Design	Merancang solusi sederhana untuk menyelesaikan problem kerekayasaan (engineering problem) (PIC1)	Merancang solusi dan alternatif solusi untuk menyelesaikan problem kerekayasaan yang kompleks (complex engineering problem) (PIC2)	Direct assessment melalui mata kuliah desain rekayasa (engineering design) terutama mata kuliah Proyek Perancangan Teknik Elektro (Capstone Design)
Data and Experiments	Kemampuan untuk menganalisis dan mengintepretasikan hasil eksperimen serta membandingkan hasil eksperimen dengan model teoritis yang sesuai (PID1)	Kemampuan untuk mendisain dan melaksanakan eksperimen, menganalisis, dan mengintepretasikan hasil eksperimen, serta membandingkan hasil eksperimen dengan model teoritis yang sesuai (PID2)	Direct assessment melalui mata kuliah yang secara intensif menggunakan data dan pengujian di laboratorium

PI (3)

Engineering Awareness and Society	Mengidentifikasi dampak kerekayasaan dalam konteks global, ekonomi, lingkungan, dan sosial. (PIJ1)	Menjelaskan dampak kerekayasaan dalam konteks global, ekonomi, lingkungan, dan sosial. (PIJ2)	PIJ1 bisa diukur di Proyek Junior (menjelaskan dampak dari solusi proyek dikerjakan). PIJ2 bisa diukur melalui Proyek Perancangan Teknik Elektro.
Sustainable learning	Menunjukkan kemampuan untuk secara aktif dan mandiri dalam mengejar peluang belajar yang baru (PIK1)	Menggunakan keterampilan yang dipelajari sebelumnya untuk melakukan tugas baru namun berkaitan (PIK2)	PIK1 bisa diukur dari Proyek Junior (belajar mandiri untuk menyelesaikan Proyek Junior). PIK2 bisa melalui studium general atau melalui skripsi dengan melakukan literature review (mencari resource sendiri) untuk menunjukkan kemampuan lifelong learning. Bisa juga dengan kuesioner di exit survey untuk syarat pendadaran.

DTETI Asessment strategy

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Table 4-14 The Colour Flag for Overall SO Attainment[4]

Category	Description	Result
RED Flag	SO_{avg} < 3.3 (66%)	Below Expectation (BX)
YELLOW Flag	(SO_{avg} ≥ 3.3 (66%) **AND** SO_{avg} < 4.6 (92%) **AND** (RED + YELLOW > WHITE + GREEN)	Below Expectation (BX)
GREEN Flag	SO_{avg} ≥ 4.6 (92%)	Meeting Expectation (MX)
NO Flag (WHITE)	Any performance vector that does not fall into one of the above categories	Exceed Expectation (EX)

[4] *Mak, Fong K., and Ramakrishnan Sundaram. "Integrated FCAR model with traditional rubric-based model to enhance automation of student outcomes evaluation process." In* 2016 ASEE Annual Conference & Exposition. *2016.*

Direct Assessment DTETI (contoh dari borang ABET)

Type of SOs	SO	Minimum level of attainment	Reason
Fundamental and Engineering Knowledge	KP1, KP2, KP3, KP4	60	Reflect the minimum attainment for D grade in our curriculum.
Hard and soft skills	SK1, SK2, SK3, SK4	70	Reflect the need of our stakeholders
Behavior and Ethics	BH1, BH2, BH3	75	Reflect the institution vision and mission statements

Sampel hasil asesmen SO (1)

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Table 4-29 Roll-up Data of PIs for KP-1 2018/2019

PI Code	EAMU	Average	Course	Name	Level	E	A	M	U	Average
KP-1.PI-1	(3, 3, 2, 9)	2.56	TKIE161101	Matematika Teknik (1st sem)	Introductory	4	15	49	30	1.49
			TKIE161201	Matematika Elektro (1st sem)	Introductory	1	4	10	7	1.59
			TKIE161203	Aljabar Linear (1st sem)	Introductory	0	1	4	13	0.56
			TKIE162101	Matematika Diskret dan Logika (1st sem)	Introductory	11	11	17	5	2.97
			⋮							
			TKIF162202P	Praktikum Metode Numeris (2nd sem)	Reinforce	62	3	0	2	4.78
KP-1.PI-02	(3, 3, 2, 8)	2.56	TKEF162205	Pengukuran dan Instrumentasi (1st sem)	Reinforce	0	4	6	5	1.56
			TKIF161102	Fisika Elektro (1st sem)	Introductory	7	54	34	8	2.64
			TKEE162203P	Prak.. Mesin Listrik Dasar (2nd sem)	Reinforce	56	26	0	0	4.47
			⋮							
			TKIE162201P	Prak.. Medan Elektromagnetis (2nd sem)	Reinforce	51	17	0	0	4.50
KP-1.PI-03	(3, 1, 1, 1)	3.07	TKU125	Probabilitas dan Statistika (1st sem.)	Introductory	7	57	40	10	2.56
			TKU125	Probabilitas dan Statistika(1st sem)	Introductory	5	5	0	0	4.17
			TKU125	Probabilitas dan Statistika (2nd sem)	Introductory	8	18	13	7	2.66
KP-1.PI-4	(3, 10, 11, 21)	2.69	TKEE161101P	Prak.. Teknik Elektro Dasar (1st sem)	Introductory	87	11	0	1	4.72
			TKEE161101	Teknik Elektro Dasar (1st sem)	Introductory	7	7	23	80	0.83
			TKEE163102	Teknik Instalasi (1st sem)	Reinforce	11	19	17	4	2.88
			⋮							
			TKEF162208	Teknik Kendali (2nd sem)	Reinforce	16	35	10	5	3.23

Sampel hasil asesmen SO (2)

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Table 4-30 Roll-up Data of PIs for KP-1 2019/2020

PI			Course							
Code	EA/U	Average		Name	Level	F	A	M	U	Average
KP-1.PI-1	(1, 2, 1, 9)	2.78	TKIE161101	Matematika Teknik (Kuliah+Tutorial) (1st sem)	Introductory	7	10	6	1	3.26
			TKIF161201	Matematika Fisika (1st sem)	Introductory	0	2	25	63	0.54
			TKIE161203	Aljabar Linear (1st sem)	Introductory	0	9	43	51	0.99
			TKIE162101	Matematika Diskret dan Logika (2nd sem)	Introductory	1	1	0	0	4.17
			TKIE162202P	Praktikum Metode Numeris (2nd sem)	Reinforced	93	3	0	0	4.95
KP-1.PI-2	(0, 6, 1, 3)	3.23	TKFF162205	Pengukuran dan Instrumentasi (1st sem)	Reinforced	1	9	8	5	2.14
			TKIE161102	Fisika Elektro (1st sem)	Introductory	28	55	6	11	3.33
			TKEE162203P	Prakt. Mesin Listrik Dasar (2nd sem)	Reinforced	48	28	0	0	4.39
			TKIE162201P	Prakt. Medan Elektromagnetis (2nd sem)	Reinforced	33	48	0	16	3.21
KP-1.PI-3	(0, 0, 1, 1)	2.73	TKU125	Probabilitas dan Statistika (1st sem)	Introductory	1	19	43	30	1.51
			TKU125	Probabilitas dan Statistika (2nd sem)	Introductory	3	4	0	1	3.54
KP-1.PI-4	(0, 0, 1, 3)	2.93	TKEE161104P	Prakt. Teknik Elektro Dasar (1st sem)	Introductory	49	38	0	0	4.27
			TKEE161104	Teknik Elektro Dasar (2nd sem	Introductory	21	0	3	2	4.23
			TKEE163102	Pemrograman Dasar (2nd sem)	Reinforced	3	11	3	0	3.33
			TKEE162206	Teknik Kendali	Reinforced	6	5	4	4	2.81

Sampel hasil asesmen SO (3)

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Table 4-31 Roll-Up Data of PIs for KP-1 2020/2021

PI Code	EAMJ	Average	Course	Name	Level	F	A	M	U	Average
KP-1.PI-1	(0, 0, 4, 6)	1.87	TKIE1611C1	Metematika Teknik (Kuliah+Tutorial) (1st sem)	Introductory	1	70	41	6	2.80
			TKIE1612C1	Metematika Elektro (1st sem)	Introductory	0	3	4	0	2.38
			TKIF1612C3	Aljabar Linear (1st sem)	Introductory	0	3	1	2	1.94
			TKIF1622C2	Metode Numeris (Kuliah+Tutorial) (2nd sem)	Reinforced	28	43	16	7	3.30
			TKIE1621C2	Isyarat dan Sistem (Kuliah+Tutorial) (2n sem)	Introductory	0	1	2	4	0.85
KP-1.PI-2	(0, 5, 1, 1)	3.48	TKFF1622C5	Pengukuran dan Instrumentasi (1st sem)	Reinforced	16	4	1	1	4.32
			TKIE1611C2	Fisika Elektro (1st sem)	Introductory	35	60	8	6	3.80
			TKEE1622C3P	Prakt. Mesin Listrik Dasar (2nd sem)	Reinforced	27	21	1	0	4.35
			TKIE1622C1P	Prakt. Medan Elektromagnetis (2nd sem)	Reinforced	25	51	3	4	3.80
KP-1.PI-3	(0, 1, 0, 0)	4.31	TKU1125	Probebilitas dan Statistika (1st sem)	Introductory	71	30	1	2	4.31
KP-1.PI-4	(1, 14, 5, 18)	2.81	TKEE1611C4P	Prakt. Teknik Elektro Dasar (2nd sem)	Introductory	66	9	3	23	3.37
			TKEE1611C4	Teknik Elektro Dasar (1st sem)	Introductory	35	90	15	8	3.38
			TKEE1631C2	Pemrograman Dasar (2nd sem)	Reinforced	1	1	0	2	2.62
			TKEE1622C6	Teknik Kendali	Reinforced	6	29	36	24	1.96

Trend analysis and root finding

KP.1. Engineering knowledge

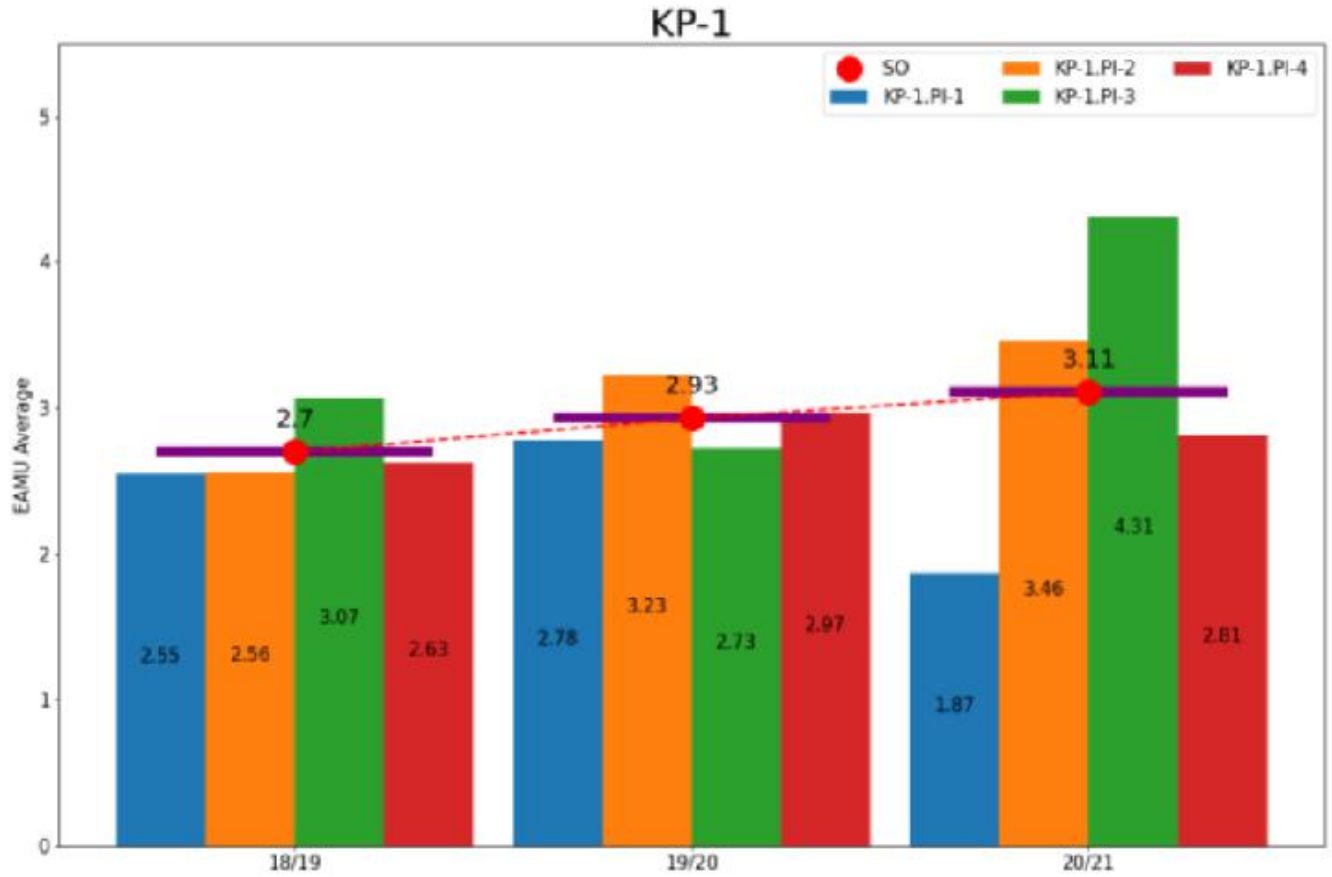
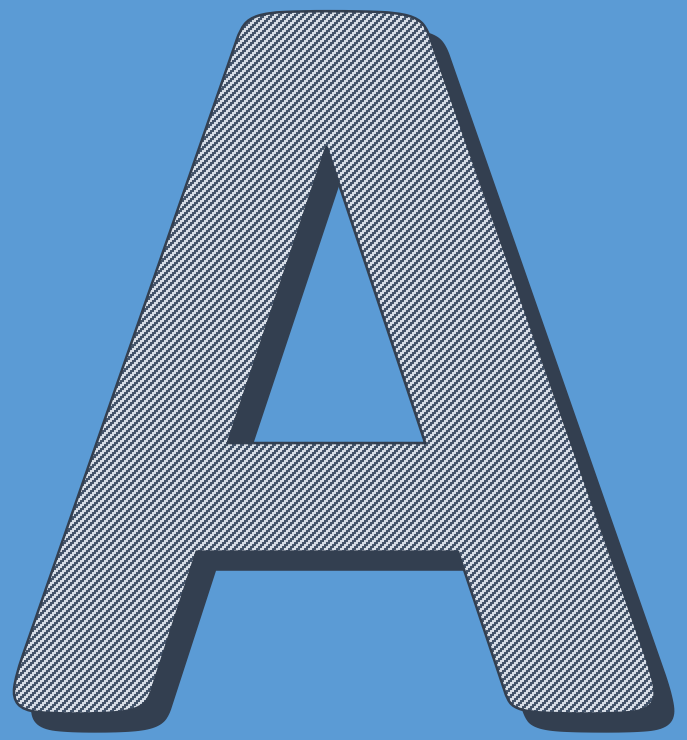


Figure 4-7 Trend for KP-1 from 18/19 to 20/21



ACTION

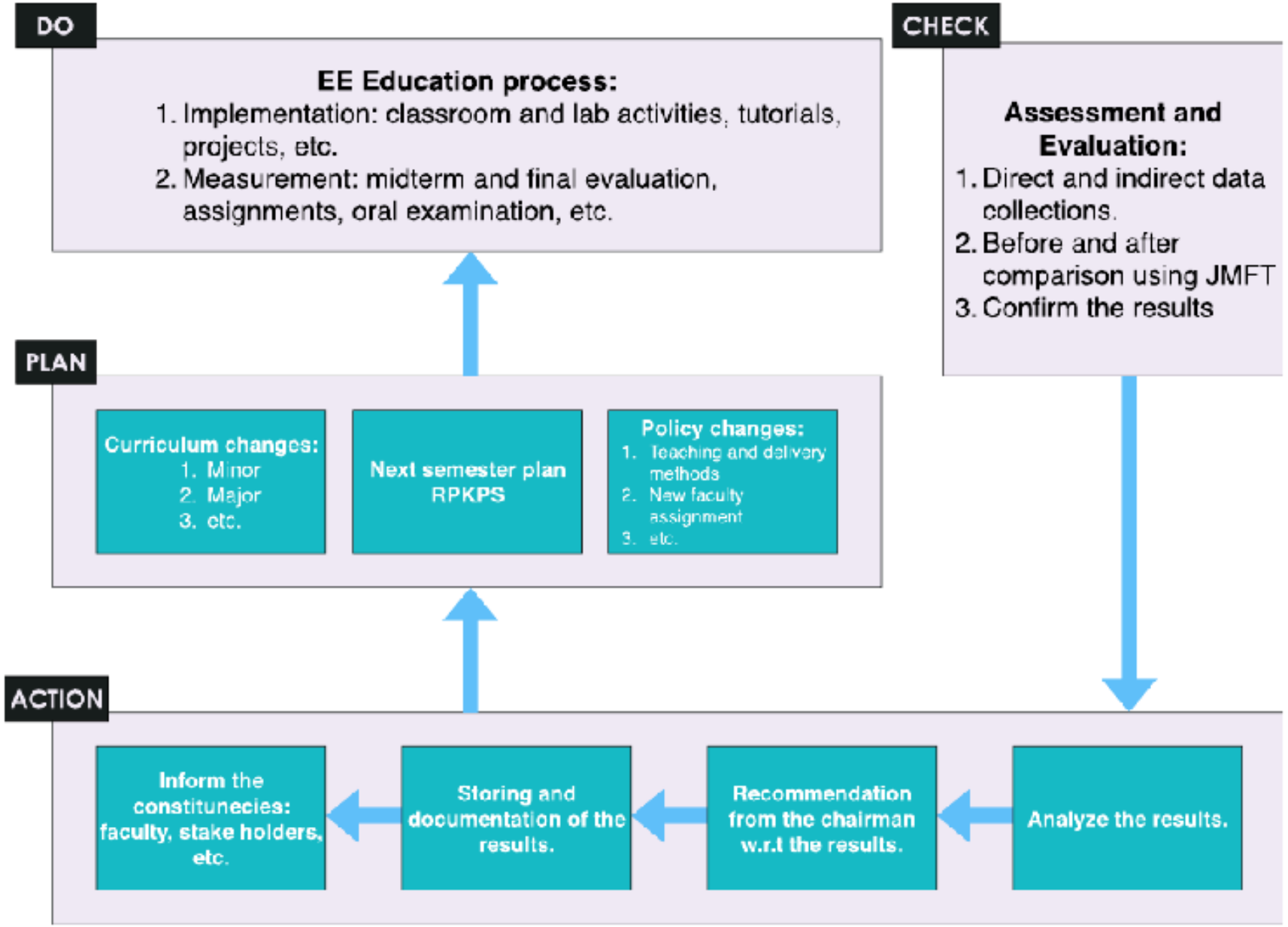


Figure 4-4 Closed-loop Process of SO Assessment and Evaluation for a Cycle

Keterlibatan dosen

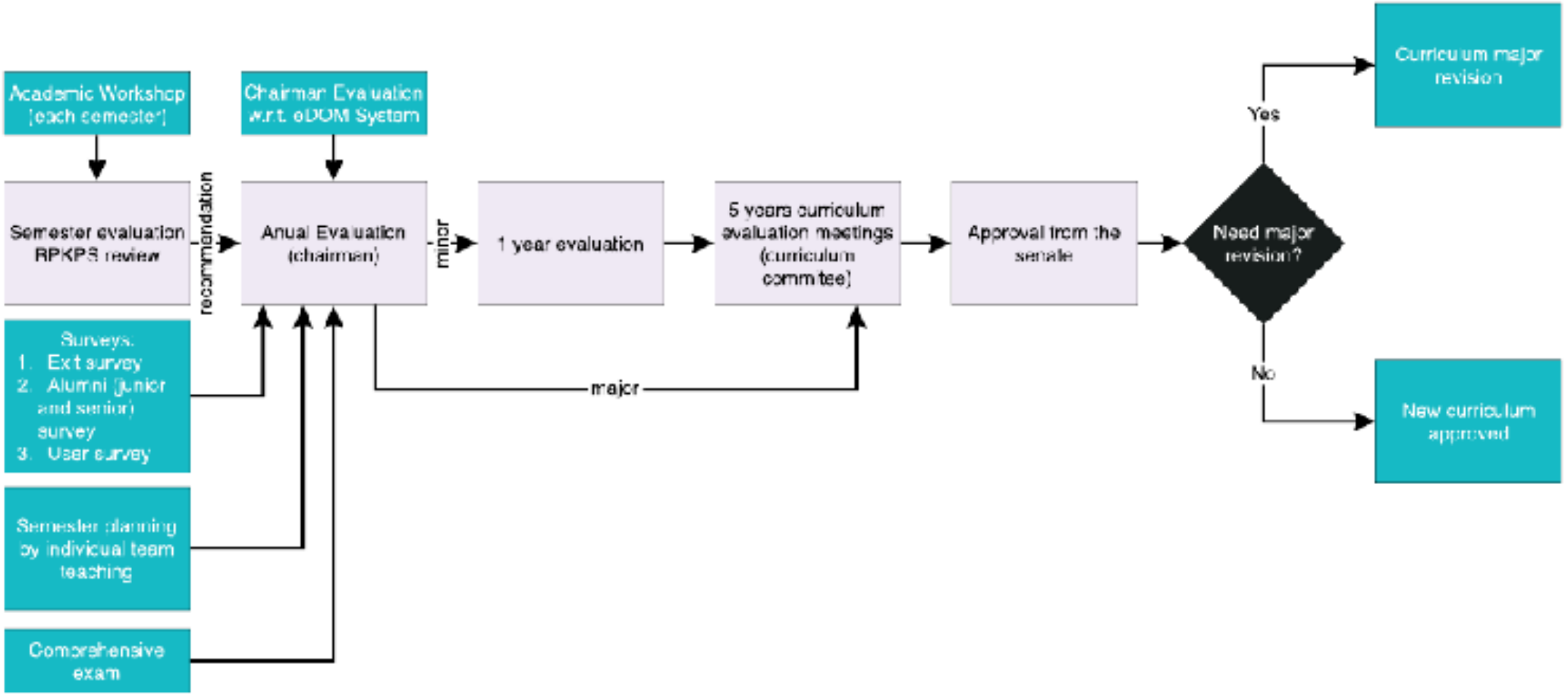


Figure 4-5 The overall process and the involvement of the faculty

PDCA – Perbaikan Berkelanjutan Dosen

- Plan
  - Ekstended Silabus (by petition)
  - RPKPS (wajib diisi setiap awal semester)
- Do
  - Materi
  - Learning delivery
  - Ujian
- Check
  - JMFT
  - LO Asessment via ABETSYS
- Act
  - Learning Outcome Evaluation
  - Assessment Evaluation
  - EDOM

Action/Evaluasi

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DTETI | Dosen

Home | Profile | Surat | Rapat DTETI 5 | Publikasi | Perkuliahan | Sarjana(S1) 5 | Magister(S2) 31 | Doktor(S3) 1 | Pengurus | Log Out

Selamat Datang » Bp/Ibu.Adha Imam Cahyadi Dr.Eng. , S.T., M.Eng.

Hasil Evaluasi Pembelajaran : GANJIL 2018 Jenjang S1

Periode/Jenjang: GANJIL 2018 | JENJANG S1

Prodi/Matakuliah: Semua Prodi | Semua Matakuliah

Tampilkan | Eksport Excel

No	Matakuliah	Kode Lo	Deskripsi	Evaluation	C1	C2	C3	C4	Improvement
1.	**TKIE161105 Algoritme Dan Struktur Data**	TKIE161105-LO1	Mahasiswa dapat menjelaskan tinjauan awal algoritme dan struktur data, menjelaskan dan mengimplementasikan pengertian algoritme, analisis algoritme, serta iterasi dan rekursi.		0	0	0	0	
		TKIE161105-LO2	Mahasiswa dapat menjelaskan dan mengimplementasikan berbagai struktur data dan algoritme.	- Mahasiswa mengalami kesulitan untuk memahami dan implementasi berbagai struktur data dan algoritme karena mata kuliah yang bersangkutan diselenggarakan bersamaan dengan mata kuliah dasar pemrograman, sehingga knowledge belu	0	0	0	1	Curriculum revision.
2.	**TKIE161203 Aljabar Linear**	TKIE161203-LO1	Students are able to explain the concept of vectors and matrices as well as matrices operation, able to solve mathematical problems involving vectors and matrices, and able to interpret this concept from geometrical perspective.		0	0	0	0	
		TKIE161203-LO2	Students are able to explain the relationship between the process of solving linear equations with matrix elimination (Gauss elimination, Gauss–Jordan elimination, and LU factorization) and able to solve		0	0	0	0	

https://magister.iteti.ugm.ac.id/dosen/New_home.php?p=FP&smst=14&i=1&pr=&m=# ...ations using the aforementioned elimination

Action/Evaluasi

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LEARNING OUTCOME MATAKULIAH

No	Learning Outcome	Course Evaluation	Improvement Planning
1.	**TKIE161203-LO1** Students are able to explain the concept of vectors and matrices as well as matrices operation, able to solve mathematical problems involving vectors and matrices, and able to interpret this concept from geometrical perspective.	students are not good in demonstrating the use of fundamental knowledge in matrices and vectors even for proving a simple expression	☑ Updating Teaching Material ☐ Project Based Learning, Problem Based Learning, Flipped Classroom ☑ Assessment Plan Changes ☐ Others More quizes is necessary
2.	**TKIE161203-LO2** Students are able to explain the relationship between the process of solving linear equations with matrix elimination (Gauss elimination, Gauss-Jordan elimination, and LU factorization) and able to solve systems of linear equations using the aforementioned elimination methods.	Good in procedural but not good in advanced concept such as solving non-standard problem.	☐ Updating Teaching Material ☐ Project Based Learning, Problem Based Learning, Flipped Classroom ☑ Assessment Plan Changes ☐ Others more advanced homework
3.	**TKIE161203-LO3** Students are able to explain the concepts of vector spaces and subspaces, able to interpret this concepts from the geometrical perspective, and able to apply this intuition from the geometrical perspective to solve related problems	Students need to have more exercise because this LO is too abstract for them	☑ Updating Teaching Material ☐ Project Based Learning, Problem Based Learning, Flipped Classroom ☐ Assessment Plan Changes

Action/Portofolio

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Selamat Datang » Bp/Ibu.Adha Imam Cahyadi Dr.Eng. , S.T., M.Eng.

PORTFOLIO MENGAJAR DOSEN : GENAP 2018

Pilih Tahun Akademik: GENAP 2018 LIHAT

No	Kode	Mata Kuliah	SKS	Kelas	Jenjang Studi	RPKPS	JMFT	Ujian Tengah Semester						Ujian Akhir Semester						Lengkapi
								Soal	Jwbn Baik	Jwbn Sedang	Jwbn Buruk	Kunci	Rubrik	Soal	Jwbn Baik	Jwbn Sedang	Jwbn Buruk	Kunci	Rubrik	
1	TKIE161203	Aljabar Linear	3	A	S1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Lengkapi
2	TKIE161203	Aljabar Linear	3	C	S1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Lengkapi
3	TKEE162206	Teknik Kendali	3	A	S1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	↓	↓	Lengkapi
4	TKIE161203	Aljabar Linear	3	B	S1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Lengkapi
5	TKEE176106	Matematika Lanjut	3	A	S2	✓	✓	✓	✓	✓	✓	↓	↓	✓	✓	✓	✓	✓	✓	Lengkapi
6	TKEE177116	Sistem Kendali	3	A	S2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Lengkapi
Prosentase						100%	100%	100%	100%	100%	100%	83%		100%	100%	100%	100%	83%		

Action items (sample)

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Table 4-64 Action Items for SO improvement

Student Outcomes	18/19	19/20	20/21
KP.1: Engineering knowledge	**Action 1:** Strengthening of Tutorial Program for Fundamental Courses	**Action 1:** LO updates for math and basic science courses **Action 2:** Set-up teaching activity arrangements during Covid-19	**Action 1:** mprove exam format during Covid-19 **Action 2:** Redesigning basic science courses for new curriculum **Action 3:** Assigning lecturers for Math and Physics classes from FMNS (FMIPA)
KP.2: Problem analysis **KP.3:** Design/ development of solutions	**Action 1:** Introduction LO related to problem solving analysis in capstone design project **Action 1:** Improving capstone design format **Action 2:** Introducing engineering design in "Perencanaan Rekayasa" course	**Action 1:** Providing co working space for capstone design project	**Action 1:** Redesigning lab-works as junior and senior projects **Action 1:** Improving capstone design rubric and report template **Action 2:**
KP.4: Data and experiments	**Action 1:** Modernization of Laboratory Equipment, i.e. Fmona Spectrum Analyzer	**Action 1:** Modernization of Laboratory Equipment, i.e., Thypoon HIL **Action 2:** Set-up lab-work arrangements during Covid-19	**Action 1:** mproving lab-work arrangements during Covid-19 **Action 2:** ntroducing the fo lowing LO to al lab works: "Evaluates tools and identifies their limitations" **Action 3:** ntroducing the fo lowing LO to al lab-works: "Selects and uses tools to solve problems" Action 4: Introducing the following LO to Sistem Mikroprosesor : "Adapting Software into Hardware "
SK.1: Modern equipment utilization			**Action 1:** ntroducing the fo lowing LO to al lab-works: "Selects and uses tools to solve problems" **Action 2:** Introducing the fo lowing LO to

Action/perbaikan

- Perubahan PEO
- Diperkenalkan konsep ETHOS for Integrity
- Evaluasi kurikulum 2016 menjadi kurikulum 2021
- Tutorial mata kuliah dasar
- Sistem kuartal
- Konsep Capstone yang baru
- Dimunculkannya lagi skripsi dan pendadaran
- MBKM yang terarah sesuai kompentensi
- Ujian Komprehensif. Ujian Komprehensif perlu menguji seluruh criteria yang dibutuhkan
  - Soal ujian komprehensif untuk mengukur SO dasar sebelum mahasiswa pendadaran
  - Update soal ujian kompre

Peran DPA, Alumni, stake holders

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- Selain itu, ada 4 agenda Career Advising mahasiswa oleh Departemen
  - TETI LabSkill (Mahasiswa baru)
  - Pembimbingan oleh DPA
  - Mata kuliah Studium General dan Kapita Selekta
  - Career Development Program (CDP)

KESIMPULAN

Kenapa ~~ABET~~ OBE?

- Internationally acknowledged (through IABEE)
- And …

Continuous Improvement

Kenapa ABET (dari www.abet.org)

- **Students**
  - Be confident in your education—~~ABET~~ IABEE accreditation ~~is~~ would be the trusted standard for employers worldwide.
- **Programs & Institutions**
  - ~~ABET~~ IABEE accreditation demonstrates your commitment to delivering quality education.
- **INDUSTRY, GOVERNMENT & THE WORLD**
  - Employers can trust that graduates of ~~ABET~~ IABEE accredited programs are prepared to enter the workforce.

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Menjamin Lulusan Memenuhi Kriteria Washington Accord melalui ~~ABET dan~~ IABEE