

### OBE IMPLEMENTATION







End Semester Report (ESR) Ulearn System

PO By Programme PO by Students

#### Governed by the REGISTRATION OF ENGINEERS ACT 1967 (Revised 2002)

• No person is allowed to practice unless he is a professional engineer

• Professional engineer may use "Ir" before his name OR "PEng" after his name

• Graduate engineers to register before taking up employment as an engineer

#### HOW TO APPLY?

#### First in the list, we need to register as a "GRADUATE ENGINEER"

	G	Board of Eng	BEM Incors Ma	යාන්ත ලැන්ත graduate engineer ( ge )
☆ Home ☆ Profile ☆ Registration Record ☆ Logoff	Welcome , ABI Graduate Engine	AIMAN BIN AYOUB er : FORM A <u>Requirements &amp; Procedures</u>		
Graduate Engineer Registration Step 1 - Personal Details Step 2 - Academic Qualifications Step 3 - Supporting Documents Step 4 - Payment Step 5 - Declaration * Please click a section to proceed Please click a section to proceed	<ul> <li>* Please make sur</li> <li>* Photocopy of IC/ documents and p</li> <li>* You must upload</li> <li>1. Copy of Idet</li> <li>2. Certified Tri</li> <li>3. Certified Tri</li> <li>4. Certified Tri</li> <li>* If any of the cert Penalties under</li> </ul>	e all sections are completed before submitting /MyKad, degree scroll and full transcripts, dip payment must be submitted to BEM within 4 wi d the following document to support your onlir ntification Card (NRIC)/MyKad ue Copy of Degree ue Copy of Full Official Transcript or Details o ue Copy of Diploma\Matriculation and Full Tra- ificates found to be forged, altered or falsified Section 24.	g application form loma scroll and fu eeks. The application (in f Course and Subj anscript (if related , the applicant ma	n. ull transcripts (if related) must be certified by an active Professional Engineer. The PDF Format): ect Taken (from first year to final year) d) <b>y be penalised under Section 24 of the Registration of Engineers Act 1967.</b> Click to read
	Step	Section	Status	
	1 Personal Det	tails	completed	
	2 Academic Qu	alifications	completed	A
	3 Supporting D	<u>Documents</u>	completed	Print Completed Application FORM A & FORM Checklist
	4 Payment		completed	et Printed FORM A and all supporting documents must be submitted within 4 weeks.
	5 <u>Declaration</u> Please click to complete the	Submit button on the Declaration page in orde e application.	r to completed	Applicant must sign at the signature column of the last page of the form.



Those who has successfully completed an accredited engineering programme

**Professional Engineer** - a **graduate engineer** who has obtained the prescribed practical experience, passed the Professional Assessment Examination, and satisfied all other requirements of the Board of Engineers (BEM)

### IS YOUR PROGRAMME ACCREDITED?



https://eac.org.my/v2/list-of-accredited-engineering-programme-malaysia/

## Why are they so important?

Are they connected to each other?













### What is EAC?

#### Engineering Accreditation Council Formed in 2000

Previous accreditation for engineering programs : PSD (1957)  $\rightarrow$  IEM (1959)  $\rightarrow$  BEM (1967)  $\rightarrow$  LAN(1996) / MQA(2007)



### **EAC ACCREDITATION CRITERIA**





### **OUTCOME BASED EDUCATION**

#### **Programme Educational Objectives (PEO)**



**Course Outcomes (CO)** 

### **PROGRAMME OBJECTIVES (PEO)**

#### long term goals (5 years or more after graduation) describing expected achievements of graduates in their career.

PEO - 3

## **PROGRAMME OBJECTIVES (PEO)**

Programme of Electrical and Electronic Engineering

- PEO1 Apply Electrical and Electronics Engineering knowledge at their respective career in globally competitive environment.
- PEO2 Uphold the importance of professionalism and ethics in engineering profession to contribute to the society.
- PEO3 Practice leadership and management skills in workplace and/or society.

## PROGRAMME OUTCOMES (PO)

### short term outcomes (at the point of graduation)

describing what students are expected to know and be able to perform.

PO - 12

## **PROGRAMME OUTCOME (PO)**

#### PO1 (Critical Thinking)

 Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in WK 1 to WK4 respectively to solve complex Electronics Engineering problems.

#### PO2

• Identify, formulate, conduct research literature and analyze complex Electronics Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1 to WK4).

#### PO3

 Design solutions for complex Electronics Engineering problems and design systems. components or processes that meet specified needs with appropriate consideration for public health and safety, cultural societal, and environment considerations (WK5).

#### PO4 (Design)

•Conduct investigation into complex Electronics Engineering problems using research-based knowledge (WK8) and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

#### PO5 (Tools)

• Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations (WK6).

#### PO6

 Apply reasoning informed by contextual knowledge to assess societal. health. safety and cultural issues and the consequent responsibilities relevant to professional Electronics Engineering practice and solutions to complex enaineerina problems (WK7).

## **PROGRAMME OUTCOME (PO)**

#### PO10 (Team **PO12 PO7** PO8 (Ethics) PO9 (Soft Skills) **PO11 (LLL)** Work) (Entrepreneur) Function Recognize the Understand and Apply ethical Communicate Demonstrate evaluate the principles and effectively on effectively as an need for, and knowledge and commit to Electronics have the sustainability individual. and understanding of and impact of professional Engineering preparation and as a member or engineering and professional ethics and activities with leader in diverse ability to engage management Electronics responsibilities the engineering teams and multiin independent principles and and norms of Engineering community and disciplinary and life-long economic works in the Electronics with society at settings. learning in the decision-making Engineering large, such as broadest context and apply these solutions of to one's own complex practice (WK7). being able to of technological engineering comprehend change. work, as a and write problems in member and societal and effective reports leader in a team. environmental and design to manage contexts (WK7). documentation. projects and in make effective multidisciplinary presentations, environments. and give and receive clear instructions.

## COURSE OUTCOMES (CO)

## statements of a learning achievement on completion of the subject.

Constructive Alignment : related to CO/PO mapping

### **EXAMPLE Course Plan**

COURSE PLAN										
Course Title	COMP	UTER SYSTEM OPERATION								
Course Code	KNL23	73								
Course Credit	3									
Course Status	Core									
Prerequisite										
Synopsis										
Course	By the end of this course, students should be able to:									
Outcomes										
(CO)			Lev	el of	Dor	nain	PO/WA	WP/EA	WK	
			C	P	A	S				
	CO1	Classify the basic parts and functions of essential hardware components of a computer system design including the architecture and operation of basic components and peripherals.	3				PO 1 WA 1		1/2/3/4	
	CO2	Solve Arithmetic problems related to the operation of memory allocation and address in modern computer system.	3				PO 1 WA 1	WP1	1/2/3/4	
	CO3	Analyze the different components in operating system design including file managements and programming tools.	3				PO 2 WA 2	WP3	1/2/3/4	
	CO4	Investigate the current trends of technology advancement relevant to the computer ecosystem.				LL	PO 11			

#### **Example: PO Mapping**

CODE	COURSES	Programme Outcomes											
		1	2	3	4	5	6	7	8	9	10	11	12
KNF1013	Engineering Mathematics 1	1	/										
KNF1023	Engineering Mathematics 2	/	/										
KNF2033	Engineering Mathematics 3	/	/										
KNF3065	Industrial Training						1	/	/	1	1	1	
KNF3102	Engineering Ethics						/		/				
KNR1033	Structured Programming	/				/				/			
KNR1042	Measurement and Instrumentation				/	1				1			
KNR1053	Analog Electronics		/			/							
KNR1063	Digital Electronics	/	/										
KNR1073	Electrical Instrumentation	/	/										
KNR1082	Engineering Design Foundation		/				/				/		
KNR1413	DC Circuits	/	/	/									
KNR1423	AC Circuits	1	1	1									
KNR2103	Telecommunication Engineering Principles	/	/				/						
KNR2113	Signals and Systems	1	/			/							
KNR2123	Software Engineering			/		/				/	/		
KNR2153	Electrical Machines		/	/	/								
KNR2433	Electromagnetic Theory	/	/	/									
KNR2443	Electrical Engineering Technology	/	/										
KNR2452	Analog and Digital Electronic Application					/							/

#### **Example: PO Mapping**

CODE	COURSES	Programme Outcomes											
		1	2	3	4	5	6	7	8	9	10	11	12
KNR2463	Safety and Health in Engineering						1	/	/	/			
KNR2473	Numerical Methods and Statistics	1	/										
KNR3183	Control System Engineering		/	/	/								
KNR3193	Microprocessor		/	/		/							
KNR3233	Electrical Power System	1	/	/									
KNR3243	Power Electronics	/	/	/						/			
KNR3483	Power Quality and Reliability	1	/		1		1						
KNR3492	Electrical Lab I					/					/		
KNR3503	Power System Protection	1	1			1				/			
KNR3513	Power System Analysis		/	/						/			
KNR3522	Electrical Lab II					1					1		
KNR3693	Digital Signal Processing		/	/		/						1	
KNR3703	Microelectronics		/	/		1							
KNR4272	Final Year Project I				/	/			/	/			
KNR4344	Final Year Project II			1	/				/	/		1	
KNR4532	Integrated Design Project I			/	/	1	1	/		/	/	1	/
KNR4543	Integrated Design Project II			1	/	/	/	/		/	/	1	/
KNR4553	Engineering Management									/	/		/
KNR4593	High Voltage Technology	/	/										
KNR4713	Computer Systems Architecture	/	/									/	

### SAR (SELF-ASSESSMENT REPORT)

## 8 topics altogether and 1 topic specifically related to STUDENTS.

Students need to get ready. EAC will have an interview with selected students. For preparation, students need to know questions that may be asked by the EAC panel and also need to improve their interpersonal skills.

### HOW TO KNOW YOU HAVE ACHIEVED ALL PO'S DURING YOUR UNDERGRADUATE STUDY?



#### **Example: Marks Distribution**

	CO	DO	Assessment /	Distri	%	
_		PO	Valuation Method	Normal	WP/EA	
	1	1	Final Exam Test	Final Exam = 12.5% Test 1 = 10%		22.5
ו ו_	2	1	Final Exam Assignment	Final Exam = 12.5%	Assignment = 10%	22.5
	3	2	Final Exam Test Assignment	Final Exam = 25% Test 2 = 10%	Assignment = 10%	45
	4	11	Assignment	Assignment =10%		10
					TOTAL	100

Assessment based on CPS(Complex Problem Solving):TestAssignment

□ Final Exam





#### **Complex Problem Solving (CPS)**



#### **CPS : WP1 – WP7**

#### The Attributes of Complex Engineering Problems (IEA, 2013)

Complex problem = 1st attribute (the depth of knowledge) + several other attributes

WP1	Depth of Knowledge Required	In-depth engineering knowledge at the level of one or more of WK3, WK4, WK5, WK6 or WK8 which allows a fundamental based, first principles analytical approach
WP2	Range of Conflicting Requirements	Wide-ranging or conflicting technical, engineering and other issues
WP3	Depth of Analysis Required	No obvious solution and require abstract thinking, originality in analysis to formulate suitable models
WP4	Familiarity of Issues	Infrequently encountered issues
WP5	Extent of Applicable Codes	Outside problems encompassed by standards and codes of practice for professional engineering
WP6	Extent of Stakeholder and Level of Conflicting Requirement	Diverse groups of stakeholders with widely varying needs
WP7	Interdependence	High level problems including many component parts or sub-problems

#### CPS = WPI + Choose some or ALL (WP2 – WP7)



The Attributes of Complex Engineering Problems (IEA, 2013) Complex problem = 1<sup>st</sup> attribute (the depth of knowledge) + several other attributes

The Attributes of Complex Engineering Problems (IEA, 2013)

- The 7 attributes of complex engineering problems defined by the Washington Accord are identical to the nature of the problems solved in the industry.
- Can be used to compare & contrast the problems unraveled in the industry with those problems that are exposed in the classrooms.



Analys

Source: (Liew et al., 2020)

#### Bloom's Taxonomy

#### **Revisit Bloom's Taxonomy**







### Bloom's Taxonomy

1	able 1: Bloom's Taxonomy of Educational Objectives for Knowledge-Based	Goals		
LEVEL OF EXPERTISE	DESCRIPTION OF LEVEL	EXAMPLE OF MEASURABLE STUDENT OUTCOME		
1, KNOWLEDGE	Recall, or recognition of terms, ideas, procedure, theories, etc.	When is the first day of Spring?		
2. COMPREHENSION	Translate, interpret, extrapolate, but not see full implications or transfer to other situations, closer to literal translation.	What does the summer solstice represent?		
3. APPLICATION	Apply abstractions, general principles, or methods to specific concrete situations.	What would Earth's seasons be like in specific regions with a different axis tilt?		
4. ANALYSIS	Separation of a complex idea into its constituent parts and an understanding of organization and relationship between the parts. Includes realizing the distinction between hypothesis and fact as well as between relevant and extraneous variables.	Why are seasons reversed in the southern hemisphere?		
5. SYNTHESIS	Creative, mental construction of ideas and concepts from multiple sources to form complex ideas into a new, integrated, and meaningful pattern subject to given constraints.	If the longest day of the year is in June, why is the northern hemisphere hottest in August?		
6. EVALUATION	To make a judgment of ideas or methods using external evidence or self- selected criteria substantiated by observations or informed rationalizations.	What would be the important variables for predicting seasons on a newly discovered planet?		

#### Example : Attributes of CPS

#### Example – Attributes of Complex Engineering Problem



### Terminologies



#### **POs (Programme Outcomes)**



- Are components indicative of the graduate's potential to acquire competence to practise at the appropriate level.
- Graduates who could enter employment and be fit to undertake a programme of training and experiential learning leading to professional competence or to be PEng/CEng

Source: (IEA, 2013)

### WP, EA, WA/PO, WK



#### **POs (Programme Outcomes)**

#### **PROGRAMME OUTCOMES - SUMMARY**

Design

The analysis of problems and synthesis of solutions based on engineering knowledge supported by engineering tools, techniques and methods.

Problem

Analysis

Investigation

Responsibilities of engineering practice with regard to social, economic, cultural, health, safety, regulatory, environmental and sustainability issues.

Ethical responsibilities of engineering practitioners.

Environment &

Sustainability

Ethics

Engineers &

Society

Individual attributes that are essential in the engineering workplace: effectiveness as an individual and in teams, communication, engineering management and independent learning.

Teamwork Communication Project Lifelong Management & Lifelong Finance

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Engineering

Knowledge

Modern

Tools

WK



#### WK



#### **KNOWLEDGE PROFILE (WK)**

(Hanrahan, 2012; IEA, 2013; Horden, 2014)



## What is Knowledge

- The broad characteristics of the different components of the knowledge embodied in a programme.
- To provide additional guidance on curriculum design & review.
  - Ŵ
    - The differences of the 8 components.
    - Relationship between engineering specialist knowledge, engineering fundamentals, natural sciences and mathematics.

#### WK1 – WK8

Know	/ledge Profile ( <mark>WK</mark> )	ТҮРЕ
WK1	Theory-based natural sciences A systematic, theory-based understanding of the natural sciences applicable to the discipline	
WK2	Conceptually-based mathematics Conceptually-based mathematics, numerical analysis, statistics and formal aspects of computer and information science to support analysis and modelling applicable to the discipline	
WK3	Theory-based engineering fundamentals A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline	KNOWLEDGE
WK4	Forefront specialist knowledge for practice Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.	
WK5	Engineering design Knowledge that supports engineering design in a practice area	
WK6	Engineering practice (technology) Knowledge of engineering practice (technology) in the practice areas in the engineering discipline	APPLICATION OF
WK7	Comprehension of engineering in society Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the professional responsibility of an engineer to public safety; the impacts of engineering activity: economic, social, cultural, environmental and sustainability	KNOWLEDGE
WK8	Research literature Engagement with selected knowledge in the research literature of the discipline	SOURCING OF KNOWLEDGE

#### WK1 – WK8



#### Summary : WP , WK

Complexity								
WP1	Depth of Knowledge							
WP2	Conflicting requirement							
WP3	Depth of analysis							
WP4	Familiarity of issues							
WP5	Extent of applicable codes							
WP6	Extent of stakeholder							
WP7	Interdependence							

Knowledge Profile									
WK1	Natural Sciences								
WK2	Mathematics								
WK3	Engineering fundamentals								
WK4	Specialist knowledge								
WK5	Engineering design								
WK6	Engineering practice								
WK7	Comprehension								
WK8	Research literature								

#### **Summary: CPS Awareness**

PO1- WK1, WK2, WK3, WK4			Attribute	Complex Engineering Problems have
PO2- WK1, WK2, WK3, WK4				characteristic WP1 and some or all of WP2
PO3- WK5				to WP7:
PO4- WK8			Depth of	WP1: Cannot be resolved without in-depth
P05- WK6			Knowledge	engineering knowledge at the level of
PO6- WK7			Required	one or more of WK3, WK4, WK5, WK6
PO7 WK7				or WK8 which allows a fundamentals-
				based, first principles analytical
P08- WK/				approach
P09-				
P010-			Range of	WP2: Involve wide-ranging and/or
P011-			conflicting	conflicting technical, non-technical
P012-			requirements	issues (such as ethical, sustainability,
				legal, political, economic, societal) and
NK1: A systematic theory-based understanding of the natural	WK5: Knowledge that supports engineering	design in a practice		consideration of future requirements
signess applicable to the dissipline	2702		Depth of analysis	WP3: Have no obvious solution and
ciences applicable to the discipline.	alca.		required	require abstract thinking, creativity and
Wa. Concertually based with evention investigation along	WIKE Knowledge of engineering practice (to	challers) in the		originality in analysis to formulate
<b>WKZ</b> : Conceptually-based mathematics, numerical analysis,	wko: knowledge of engineering practice (te	conology) in the		suitable models
tatistics and formal aspects of computer and information	practice areas in the engineering discipline.		Familiarity of	WP4: Involve infrequently encountered
cience to support analysis and modelling applicable to the			issues	issues or novel problems
liscipline	<u>WK7</u> : Comprehension of the role of enginee	ering in society and		
iscipine.	identified issues in engineering practice in the	ne discipline: ethics	Extent of	WP5: Address problems not encompassed
NK3: A systematic theory-based formulation of engineering	and the professional responsibility of an en	gineer to <b>public</b>	applicable codes	by standards and codes of practice for
wide a systematic, theory-based formulation of engineering	and the processional responsional of an en	seconomia casial	Endershield	professional engineering
undamentais required in the engineering discipline.	salety; the impacts of engineering activity:	economic, social,	Extent of	WP6: Involve collaboration across
MAR Facility and a second all the law and a data that was of the	cultural, environmental and sustainability.		stakeholder	engineering disciplines, other fields,
<b>WK4</b> : Engineering specialist knowledge that provides			involvement and	and/or diverse groups of stakeholders
heoretical frameworks and bodies of knowledge for the	WK8: Engagement with selected knowledge	in the	connicting	with widely varying needs
ccepted practice areas in the engineering discipline; much is	research literature of the discipline.		Interdependence	WD 7: Addrage high level problems with
t the forefront of the discipline			interdependence	many components or sub problems that
it the forenone of the discipline.				many components of sub-problems that



### HIGHLIGHTS

- End Semester Report (ESR)

- What is ESR?
- ESR Practice in the

Department

Analysis from ESR
What happened when students
did not achieved their PO?

#### -Now: Ulearn System

### IT'S THE END OF THE SEMESTER. AND .. AS A LECTURER, WE WILL

**BEFORE:** 

Submit our End Semester Report: i) softcopy to UPIK representative (OBE unit) and,

ii) hardcopy (signed) to PC

NOW: Ulearn System:

Key in all Marks distribution based on COs percentage in myclass system

i) hardcopy (signed) to PC



WHAT IS END SEMESTER REPORT?

#### WHAT IS END SEMESTER REPORT (ESR) / Now: Ulearn System?

• Direct tool for :

#### Continuous Assessment

### Analyzing CO & PO achievement

Continuous Quality Improvement (CQI) HOW ESR (Now: Ulearn System) HELPS IN CONTINUOUS QUALITY IMPROVEMENT?



## STUDENT CQI & COURSE CQI

### STUDENT CQI

**Example from ESR File** 

Lecturer Name:

#### CQI REPORT: STUDENT PERFORMANCE

COUR	ISE COD	e, Title, Er:		KNT 45	43 R	F Circu	uit Design Se	Please refer with			
	Number of CO address in the co			urse:	4	Passing	CO		PO	for the latest passing	
	Tota	al number of students enrolled: 19 d		d Ihreshol	50			threshold. This value can be updated from time to time for CQI050			
	AI	NALYSIS	1: P	ercenta	ige of	fStude	ents Achieve	ment	for each	CO	& PO
	CO Ac	nievemer	nt					PO	Achieve	mer	nt 👘
	Number of Students Achieved	Number of students Not	% of Achi eved	% Not Achieve d					2 Achieved	X Not Ach	
CO1	8	11	42	58	42			PO1	42	58	42
CO2	16	3	84	16	84			PO2	84	16	(14
CO3	15	4	79	21	79			PO3			0
CO4	15	4	79	21	79			PO4			0
CO5	0	0			0			PO5	79	21	(79)
CO6	0	0			0			PO6			(0)
CO7	0	0			0			PO7			(0))

## STUDENT CQI

4 analysis which includes
Percentage of students' achievement for each CO and PO
Number of students achieving/not achieving all CO
Percentage of students scoring different range of marks for CO
Number of students achieving/not achieving all PO

## COURSE CQI

O with lowest achieve	s: Current Seme	PO1				Pr	evious semest	ar 👘						
CQI Thresho	ld:			50				1						
RESULT:	50 % and more	of the t	otal stude	nts enrol	lled for ti	is co <b>u</b> rse	successful	ly achiered		C02				
General Comment														
eneral, PO1 is not achieved is based on how the stude ghtage is only 17.5%. CO of this PO has been rev	neanwhile PO2 and hts used their know ised therefore, con	PO5, both ledge to so aparison be	of these POs lve problem: tween curren	are achiev s and to me t semester	ed. For PO1 asure this o and previou	, the percent utcome, this is semester i	age of studen course requir s not applicab	ts who has acl ed the student le.	ieved thi to perfo	s PO is only 4 rm in their tes	2% meanwhile 5 : 1 and 1 of the c	8% of total stud question in final	ents didn't ach examination. Th	ieved PC he
Strength									-					
ctional coupler, filter and a uponents for telecommunica	nplifiers very well. tion system using r	During the elevance mi	class, the lect	urer has al nputer-Aid	so taught th led-Design (	e students o CAD) softw	n how to calcu vare step by st	late the imped ep. That is ho	lance and w the stu	admittance u dents can achi	sing the Smith C eved both POs.	Chart and also d	o the design of	the RF
Weaknesses/ Problems														
as in general comment, mo ducted with some tools and	st students failed to I software can enha	o achieve th nced the ab	is PO. This m ility of the st	ight due to udents to	the lack of understand	hands on ac more compa	tivity during th red to just lec	e class for ch ure.	apters co	vering this PC	). Different fron	n PO1 and PO2 v	where the class	was
Cause of Problem														
s of the reason for the prob mais too short and too pac	er, above is that, th s to deliver all of th	iere is no s e materials	oftware or to in 14 weeks.	ols that av	ailable to te	ach the stud	ents on the ba	sic of RF circ	iit desigr	. Some of the	informations ca	annot be deliver	ed on time as th	he time
Suggestions for Improvem	ant l	-												
turer can try to find a new o ose which topic is very imp	r related software ( ortant rs	hat can be Ling unn	used as the to ecessary info	ools to inc rmation in	rease the sti certain chap	idents under iters.	standing on th	e basic of RF	Circuit E	lesign. By tha	the delivery ca	in be done very ·	well. Also, the l	ecturer
							1 1			1	1 1	1	Î Î	

### COURSE CQI (ADDITIONAL)

Department's initiative: We introduced

#### **COURSE CQI FORM**

**CQI FORM (PRE-SEMESTER)** 

Submit before semester start (Suggestion for improvement)

#### **CQI FORM (MID-SEMESTER)**

Submit and present during Mid Semester break (Implementation of suggestion for improvement)

#### **CQI FORM (END-SEMESTER)**

□ Submit after Final Exam (Suggestion for improvement)



## ANALYSIS FROM ESR

### Now: Ulearn System





#### Example from ESR data (Now: Ulearn System)

1															
			PO Achieve	mei	nt										
			Department of Electr	on	ics	(PI	(E)	(7							
			Semester	2											
			Session 2017	/20	18										
											N	Ach	ieve	d	
											X	Not	Achi	ieved	
					_			Prog	ram	Ou	tcom	les		_	
	NO	CODE	COURSES	1	2	3	4	5	6	7	8	9	10	11	12
	1	KNL2363	Software Engineering			V		V				V	V		
	2	KNL2302	Analog and Digital Communication					V				V			
	3	KNL2373	Computer System Operation	N	N									N	
	4	KNL2593	Numerical Methods and Statistics	V	V										
	5	KNL3183	Microelectronics		V	V	V								
	6	KNL3483	Electromagnetic Theory	V	N	V									
	7	KNL3333	Data and Computer Networking	V	V	V	V								
	8	KNT3113	Optoelectronics		N	-							V		
	9	KNT3163	Telecommunication Network nd Services		V		V	V				101 112			
	10	KNT4094	Final Year Project II			N	V				N	V			
	11	KNT4523	Integrated Design Project II			V	V	V	V	N		V	V	V	N
	12	KNT4153	Mobile and Wireless Communications			V	V						V		
	13	KNT4553	Wireless Sensor Network			V	V			V			V		
	14	KNT4563	Sattelite Communication			V	V	V							
	15														

#### Example from ESR data (Now: Ulearn System)





## OBE Unit will extract the PO achievement into PO Assessment by student (Data from ESR File)

courses selected/mapped for each PO

																			PC	1
						OVERA			Matrix	KNL	KNL		KNL	KNL	KNL	KNL	KNL	KNL		
						P	0	_	Number	1233	1453	1573	1253	1583	2283	2463	2373	2597	KNL3	KNI
	-				-					m	m	m	m	m	m	m	m		483 (1)	333
		1 I			_				4	35										
	1	2	3	4	5	6	7		4					1						
	34	32	#DIV/0!	#DIV/0!	28	#DIV/0!	#DIV/0!	#	4								_			
	48	63	#DIV/0!	#DIV/0!	89	#DIV/0!	#DIV/0!	#	4											
	41	79	#DIV/0!	#DIV/0!	89	#DIV/0!	#DIV/0!	#	4											
	30	53	#DIV/0!	#DIV/0!	89	#DIV/0!	#DIV/0!	+	4		70									
	37	60	#DIV/0!	#DIV/0!	41	#DIV/0!	#DIV/0!	#	4			62								
	47	36	#DIV/0!	#DIV/0!	81	#DIV/0!	#DIV/0!	#	4				28							
	44	57	#DIV/01	#DIV/01	81	#DIV/01	#DIV/01	-	4							(	9 - 3			
-	56	64	#012/01	#[]]//01	78	#DIV/0	#01/1/01		4							<u> </u>	<u> </u>			
-	44	72	#00/201	400000	00	#D0201	#101/2/01	44	4											
-	77	14	#DIVI0:	#01710:	00	#DIVIO:	#DIVIO:	11	4			-		60	-				<u> </u>	$\square$
4	50	56	井山17701	#UIV/U!	42	モロマルト	#L11970!		4											
Ц	61	63	#DIV/0!	#DIV/0!	79	#DIM(0)	#DIV/0!	#	4											
	61	85	#DIV/0!	#DIV/0!	82	#DIV/0!	#DIV/0!	*	4											
	34	70	#DIV/0!	#DIV/0!	81	#DIV/0!	#DIV/0!	#	4					-	51					
	24	36	#DIV/01	#DIV/0]	42	#DIV/0!	#DIV/01	**	4					1	21					
	41	75	#DIV/0!	#DIV/0!	79	#DIV/0!	#DIV/0!	#	4										<u> </u>	
	60	61	#DIV/0!	#DIV/0!	74	#DIV/0!	#DIV/0!	#	4											
	50	60	#DIV/0!	#DIV/0!	81	#DIV/0!	#DIV/0!	#	4		8					50				
	76	73	#DIV/0!	#DIV/0!	77	#DIV/0!	#DIV/0!	#	4											
	69	77	#DIV/0!	#DIV/01	82	#DIV/01	#DIV/01	#	4											
-	0	0	#01/201	#01/2/01	0	#019/101	ADIVI01		4					1			2			

If the students achieved in at least 50% of total courses mapped to a particular PO, he/she is said to achieve the PO (PO Analysis based on ESR File)

7						
8	Student's Name	No Matri	PO (1)	PO (2)	PO ( 3)	
9	A	45481				
10	4	18	Achieved	Achieved	Achieved	
11	4	19				
12	4	2	Achieved	Achieved	Achieved	
13	d	7	Achieved	Achieved	Achieved	
14	d .	16	Achieved	Achieved	Achieved	
15	E	81	Achieved	Achieved	Achieved	
16	E	6	Achieved	Achieved	Achieved	
17	F	7	Achieved	Achieved	Achieved	
18	F	9	Achieved	Achieved	Ac. ieved	
19	F	7	Achieve	Achieved	Acheved	
20	н	7	Achieved	Achieved	Achi ved	
21	L.	19	Achieved		Achi ved	
22	J	8	Achieve	Achieved	Achieved	
23	K	6	Achievea	Achieved	Ac' ieved	
24	L	:5	Achieved	Achieved	/ chieved	
25	N	6	Achieved	Achieved	Achieved	
26	N	2	Achieved	Achieved	Achieved	
27	N .	5	Achieved	Achieved	Achieved	
28	N .	5	Achieved	Achieved	Achieved	
29	<u>N</u>	:8	Achieved	Achieved	Achieved	
30	<u>N</u>	6	Achieved	Achieved	Achieved	
31	<u>N</u>	7	Achieved	Achieved	Achieved	
32		401-51	Achieved	Achieved	Achieved	

#### Now: Ulearn System

#### Programme Learning Outcome - Achievement by Students Intake 2023/2024-1

Bachelor of Electrical and Electronics Engineering with Honours, FE, UNIMAS

				Malaysian Qualification Framework											
				MQF1	MQF2	MQF3D	MQF3E	MQF3A	MQF3B	MQF3F	MQF5	MQF3C	MQF3F	MQF4A	MQF4B
								Program	nme Lea	arning O	utcome				
No.	Matric No	Student Name	Student Status	1	2	3	4	5	6	7	8	9	10	11	12
1.	97		CONFIRMATION FOR REGISTER	2/4	1/1		2/2	2/2				2/2			
2.	97		CONFIRMATION FOR REGISTER	2/4	1/1		2/2	2/2				2/2			
3.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
4.	97		CONFIRMATION FOR REGISTER	2/4	1/1		2/2	2/2				2/2			
5.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
6.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
7.	97		CONFIRMATION FOR REGISTER	2/4	1/1		2/2	2/2				2/2			
8.	97		CONFIRMATION FOR REGISTER	1/4	1/1		2/2	2/2				2/2			
9.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
10.	98	iA	CONFIRMATION FOR REGISTER	3/4	1/1		2/2	2/2				2/2			
11.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
12.	98		CONFIRMATION FOR REGISTER	3/4	1/1		2/2	2/2				2/2			
13.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
14.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
15.	98		CONFIRMATION FOR REGISTER	3/4	1/1		2/2	2/2				2/2			
16.	98		CONFIRMATION FOR REGISTER	1/4	1/1		2/2	2/2				2/2			
17.	98		CONFIRMATION FOR REGISTER	0/4	1/1		2/2	2/2				2/2			
18.	98		CONFIRMATION FOR REGISTER	0/4	0/1		2/2	2/2				2/2			
19.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
20.	97		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	2/2				2/2			
21.	82455		CONFIRMATION FOR REGISTER	4/4	1/1		2/2	1/2				2/2			

#### From the analysis, OBE Unit will come out with a PO Achievement Report (Data From ESR File)

us	DEPARTMENT	UNIVERSITI FACULTY OF ELECTRIC	ALAYSIA SAR OF ENGINEER AL AND ELECT	AWAK ING TRONIC ENGIN	SUM EERING THEIR PO	nma
rogramme: Ele	ctronic – Teleo	ommunicati	on (PKET)			
Semester/Date	of meeting:	Sa				
ummary of PO	Achiev at	by Students:				
Year of Study		6	5	4	3	2
Total of Active Student	1	1	10	43	58	53
Batch	11/12	12/13	13/14	14/15	15/16	1. 7
		No. of stud	ents not achie	ved a PO:		
PC	0	0	1	7	1	4
P	0	0	1	3	0	7
P	0	0	0	3	2	0
P	0	0	1	1	0	NA
P	0	0	0	0	0	0
PL	0	0	0	0	0	2
PO	0	0	0	2	NA	N
POS	0	0	1	0	1	1
	0	0	0	0	0	
PO9						
P09 P010	0	0	0	0	0	0
P09 P010 P011	0	0	0	0	0	0 NA

#### Year of study: 7 (Batch 2011/2012)

Student's name	PO not achieved	Reason	*Remarks (by Program
			Coordinator)
Nil			

\* Remarks: All of the students achieved their PO.



(NA) PO is not accesse.

8	No Student's Na Matri	PO (1)	PO (2)	PO ( 3)	PO (4)	PO (5)	PO (6)	PO (7)	PO (8)	PO (9)	PO (10)	PO (11)	PO (12)
9	7	Achieved											
10	2	Achieved											
11		Achieved											
12	0	Achieved											
13	2	Achieved											
14	4 1	Achieved											
15	4	Achieved											
16	4 1	Achieved											
17	1	Achieved											
18	4 1	Achieved											
19	<u> </u>	Achieved											
20	<u> </u>	Achieved											
21	4	Achieved											
22	<u> </u>	Achieved											
23	<u>F</u>	Achieved											
24	<u>L</u>	Achieved											
25	L I	Achieved											
26	L I	Achieved											
27	<u> </u>	Achieved											
28		Achieved											
29		Achieved											
30	r	Achieved											

#### **PO Achievement : ALL Students achieved**

### WHAT HAPPENED IF THERE IS ANY OF YOUR PO'S WERE NOT ACHIEVED?



#### **Example : Not Achieved**

-		H- I								1				
*	Student's l	Hatr	P0 (1)	P0 (2)	PO(3)	P0 (4)	P0 (5)	PO (6)	P0 (7)	P0 (‡)	P0 (9)	P0 (10)	P0 (11)	P0 (12)
22			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
23			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
24			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
25		- 0	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
26			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
27		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
28			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
29			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
30			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
31			Achieved		Achieved		Achieved				Achieved	Achieved		Achieved
32		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
33			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
34		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
35			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
36		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
37			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
38		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
39			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
40		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
41			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
42			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
43			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
44		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
45		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
46			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
47		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
48			Achieved		Achieved		Achieved				Achieved	Achieved		Achieved
49		- 1	Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
50			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
51			Achieved		Achieved		Achieved				Achieved	Achieved		Achieved
52			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
53			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
54			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
55			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
56			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
57			Achieved	Achieved	Achieved		Achieved				Achieved	Achieved		Achieved
58			Achieved		Achieved		Achieved				Achieved	Achieved		Achieved

## WHAT HAPPENED IF THE STUDENTS DID NOT ACHIEVE THEIR POS?

#### 2 CONDITIONS



# InterventionAssignmentExercise

InterventionExit InterviewAssignment

