



Applied Engineering College
كلية الهندسة التطبيقية



NEW PROGRAM DESIGN AND APPROVAL

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In Partnership
with



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Kingdom of Saudi Arabia



المؤسسة العامة للتدريب التقني والمهني
Technical and Vocational Training Corporation

Contents

1.1 Introduction	3
1.2 Guidelines for Program/ Module Design	4
1.3 Needs Analysis Process	5
1.4 Program Aim and Learning Objectives.....	6
1.5 Content and Sequencing	8
1.6 Assessment Mapping and Framework.....	9
1.7 Curriculum Alignment Strategy.....	10
1.8 Evaluation Framework	14
1.9 Core Teaching and Learning Activities	16
1.10 Student Workload	17

1.1 Introduction

The Kingdom of Saudi Arabia is based on the principle that HE institutes have the autonomy and responsibility to develop their programs, however the academic standards and the quality of the teaching and learning must be aligned to the Accrediting Body (AB).

Chapter 1: Program Design which has been mapped against **QAA Ref: B1** and is designed to guide the AEC stakeholders responsible for Program Design through a systematic process that will enable them to design an informed program that is:

- Constructively aligned
- Offers increasing levels of student activity and expertise through the program
- Student centered
- Cognitively and intellectually challenging
- Meets the expectations and the AEC and AB
- Demonstrates clear course reference points

AEC's vision is to promote high quality degree programs that can be recognized for excellence both nationally and internationally. Program Design plays a critical role in achieving this goal and preparing all our students with lifelong learning capabilities and success with future employability. To enable right programs are created the AEC follows the information in this chapter to ensure the development process can be communicated to all stakeholders around the proposed program characteristics which have been linked to the guidelines that will be discussed.

Furthermore, the following points will be considered:

1. What makes the program distinctive to Saudi Arabia?
2. How are AB qualifications descriptors referenced within the course?
3. What are the key characteristics of the program and how are they linked to the AEC graduate profile?
4. What pedagogical approaches underpin the program to ensure active student participation?

This chapter has taken into consideration The QAA UK Quality Code for Higher Education B1 (2013), states:

“Programme design, development and approval depend on reflection and critical self-assessment by individuals, groups and higher education providers. Designing a programme is a creative activity, which leads to an iterative process of development, depending on feedback from a range of sources, which may include other staff, students, employers and professional, statutory and regulatory bodies. Programme approval involves a number of steps, but there is clarity for all parties involved about the point at which the degree-awarding body definitively approves a programme for delivery.”

1.2 Guidelines for Program/ Module Design

Introducing a new program into the AEC follows a strategic, evidence-based process. Key AEC factors must be taken into account and justification for each one is required. The structure follows the Academic Governance model at the college where the introduction of new programs must be deemed viable and justified based on 4 categories. Each category needs to be justified and strategic need and impact of the proposed new program needs to be discussed and evidenced. For each category

1. General

- Is there a demand for the program? (Consider government, student, employers, professional bodies, and careers data.)
- Is there a gap in the market?
- How does it align/ enhance/ contrast with other AEC programs?
- How does it fit with COE/TVTC and institutional requirements?
- How have student program feedback influenced the decision?
- Are the new program roles and responsibilities understood and allocated?

2. Program Aims

- What are the program aims and objectives?
- What is the proposed structure?
- Are constructive alignment principles and practice in evidence?

- How does the program ensure coverage of developmental opportunities for the AEC graduate profile?
- How many of the courses are new and how many shared?
- Is the program relevant to Saudi Arabia?

3. Pedagogy

- What is the teaching and learning strategy for the program?
- How will students be specifically supported in their first year/transition to the AEC?
- What opportunities will there be for practical application of new learning during the program?
- How will digital learning be effectively used in the program?
- Does the program offer a range of assessment modes in line with the AEC Assessment Guidelines?
- Where are the key resources and readings?

4. Business Assessment

- What are the proposed numbers and how are these estimated to grow?
- Is the program sustainable?
- Will the program be delivered within current staff resources (capacity and capability)?
- Will additional staff development be needed?
- Will the program require any capital investment?

1.3 Needs Analysis Process

Once the evidence for new program justification has been collected and documented further investigation into the AEC need and the capability is required. Thus, the next stage is to follow the Needs Analysis Process (see Figure.1) for further insight into the AEC need.

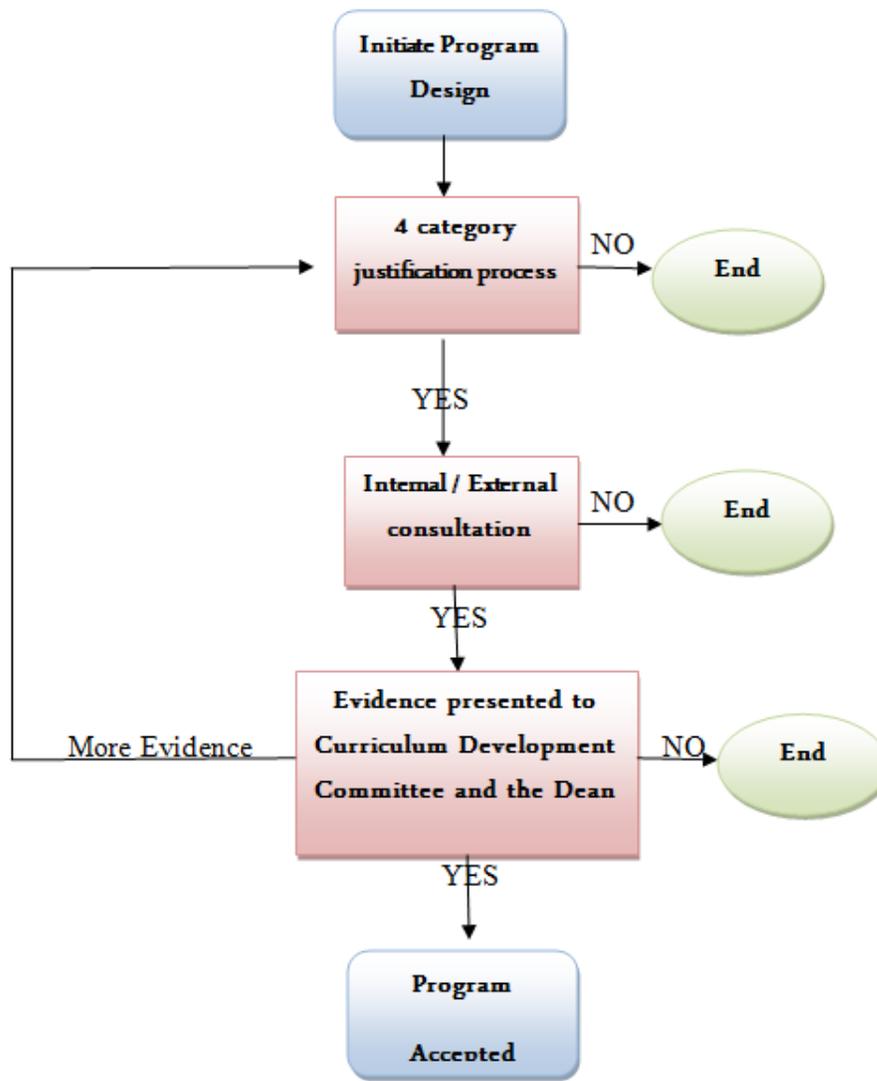


Figure.1

1.4 Program Aim and Learning Objectives

Writing your Program Aims

The Program Aim (PA) is at the top of the hierarchy of description commonly used to define learning experience. It will communicate to all stakeholders including students and teachers the general statement regarding the intended consequences of a learning experience (Fry et al, 2003).

New Program Design and Approval

Written from a teacher's vision of the program it should communicate the philosophy that underpins the program, values and unique learning opportunities. Finally, there should be reference points related to:

- Disciplinary Knowledge
- Academic Competencies
- Attributes or Qualities

At The AEC the Program Aim should be no longer than 100 words and should include:

Core Statement	Descriptor
We value	Approaches to learning and teaching; Professional body requirements; real world context; the development of employability skills etc.
The uniqueness of our program is	What we want to be known for
Our graduates are able to	skills attribute and attitudes on graduation, linked to AEC graduate profile
Our graduates will know	Knowledge and understanding leading to lifelong learning.

Writing your Program Learning Outcomes

Program Learning Outcomes (PLOs) are broad statements that identify what learners will have gained as a result of their program of learning. They should be linked to the knowledge, competencies, cognitive skills and subject specific skills developed in throughout the program. These should be referenced against the AB framework and communicated to students. In order to build comprehensive and standardised PLOs, departments are advised to use Dearing's Domains

New Program Design and Approval

of Learning (see table below). All PLOs should contain the following (Gosling and Moon,2001: 19) :

1. A verb that indicates what the learner is expected to be able to do at the end of the period of learning.
2. Word(s) that indicate on what or with what the learner is acting.
3. Word(s) that indicate the nature (in context or in terms of standard) of the performance required as evidence that the learning was achieved

Knowledge and Understanding	Communication and Numerical skills
Cognitive Skills	Interpersonal skills and Responsibility

1.5 Content and Sequencing

Once the PLOs have been established the next phase is to identify and add content. This should contain a mixture of

- Disciplinary Knowledge

- Academic Competencies
- Attributes or Qualities

The identified content should link to what the AEC requires students to achieve to meet the developed graduate profile. This stage involves identifying key themes, topics and areas within the disciplinary that should be included. The department responsible for the program has the autonomy to logically sequence the course as they deem necessary. However, they must reference the design process in the Program Design Plan.

Points to consider:

- How might your program be structured?
- What would be the advantage or disadvantages of this approach?
- Do you want a spiral curriculum (revisiting learning but at a deeper level)?
- Determine how skills, knowledge and attributes might be developed and at what level (At this stage it is important to refer to the AB requirements to ensure that learning is recognized and assessed at an appropriate level).
- Broad topic domains and where these will sit within the program
- Consider whether or not work placements are to be included and if so when and for how long
- Your overall assessment strategy and how this links to future the employability
- How your structure complies with the AEC's Academic Regulations?
- Teaching approaches align with learning outcomes
- Curriculum activities challenge and promote developing expectations with learners
- Common assessment and feedback processes are utilized
- Embedding AEC graduate attributes and employability skills

1.6 Assessment Mapping and Framework (QAA Ref: B6)

“Assessment policies, regulations and processes underpin the setting and maintenance of academic standards.”

The QAA UK Quality Code for Higher Education B6 (2013)

All learning tasks should enable students to optimize their assessment performance. Thus, the design of the assessments and how they are mapped against the PLOs will have a real influence on what students learn. In designing the Assessment Tariff all departments at the AEC should consider:

1. Validity
2. Reliability
3. Transparency
4. Fairness
5. Manageability - linked to student workload
6. Contribution to learning

Where possible assessment dates should be pre-planned and published at the beginning of the semester. In designing Assessment Tariffs there needs to be appropriate demands so students are able to demonstrate the highest levels of attainment. Each department should take the following points into account when planning assessment workload:

- Assessments should be scheduled across the semester in a coordinated manner wherever possible such that students are not subjected to an undue workload at particular points in the term
- Assess a little rather than a lot
- Focus on key reference points
- Do not repeat assessment points
- Fix and maintain assessment times
- All assessments must be clearly mapped against the program content and be referenced
- Different forms of assessment methods should be used incorporating formative and summative approaches.
- Assessment criteria (grade descriptors) should be published and provided to all students, markers and examiners, including external examiner.

1.7 Curriculum Alignment Strategy

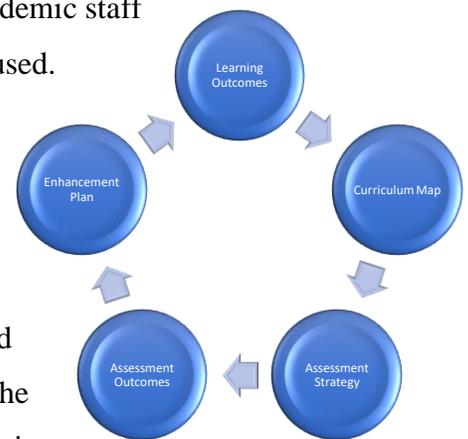
New Program Design and Approval

The curriculum alignment strategy aims to improve our teaching and learning methodology and communicate the proposed program learning outcomes to all our stakeholders and how we will meet them. The curriculum map (MP) will:

- Reveal what is being taught and when
- Highlight any gaps in our programs
- Aid the production of relevant and informative assessments
- Improve communication within the department and across the college
- Enhance program coherence
- Increase the probability of students achieving program learning outcomes
- Infused industry led competencies
- Identity employability opportunities

Our aim is to infuse our programs with identifiable employability achievements that are informed by our industry partners and College Advisory Board (CAB). Every academic year all students will have access to their module/ program maps and our academic staff with help them understand what they mean and how they should be used.

Furthermore, the college will link graduate outcomes with the employment criteria to enhance employment opportunities. The Continuous Curriculum Improvement Plan (CCIP) which is part of our Quality Assurance and Enhancement strategies will allow the college to enhance the learning opportunities of all our students based on informed curriculum and assessment needs. More so, it aligns to the AEC vision of excellence in education and producing skills and effective graduates.



Our Curriculum Development Process (CDP) presents a systematic process in designing our programs to offer our students' the best possible opportunity to achieve the programs learning outcomes. The developed map visually outlines the links between programs/ modules/ assessments and indicates the students' different development levels through learning experiences. If a module or program requirement is linked to an outcome in a practical manner, the map records the degree to which accomplishment of the outcome is expected.

Stage 1: Reconnaissance

To begin all departments and teachers' will begin with identifying the programs intended learning outcomes. Next the department members will identify the recommended and required modules and other required learning experiences including company field practice (CFP).

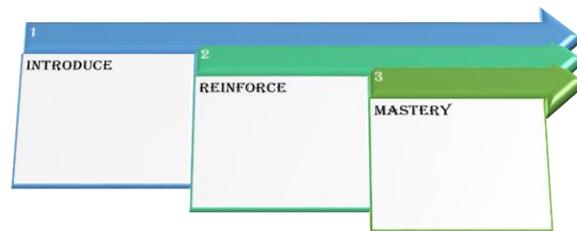
Stage 2: Map Design

Using the data collected in Stage 1 the department will start to create the CM adding all relevant program information including:

- Program Learning Outcomes
- Module identifiers (module codes)

Stage 3: Mapping

As discussed and illustrated by figure.1 part of the CM is identifying the role the learning experiences will have on the students' achieving the proposed program and module learning outcomes:



- **Introduce (I):** The module requirement introduces a learning requirement/ concept that are connected to the program learning outcomes. Over the 3 years academic program several modules will be part of the students' program outcome achievement. Students' will be provided practice opportunities and scaffolded to lay the foundation for future development. Some modules may only introduce a proposed outcome.
- **Reinforce (R):** The module will support, reinforce and enhance students' development of a targeted skill or knowledge requirement. It will support the student in achieving a program

New Program Design and Approval

learning outcome later in their studies. It is the next level of development which is grounded at I stage.

- Mastery (M):** The module requirement stresses the opportunities for students to integrate and demonstrate acquired knowledge, skills and attitudes necessary for mastery of the outcome at the end of the program. Pedagogy methodologies and learning activities are focused on student producing evidence of achieving the proposed outcome. The final stage of the process that is supported through I and R stages.

Example

	Program Outcome 1						
Module	I						I
Module		I			I		
Module	R		I		R	I	
Module			R	I		R	R
Module		R		R			
Module	M	M	M	M	M	M	M

Key:

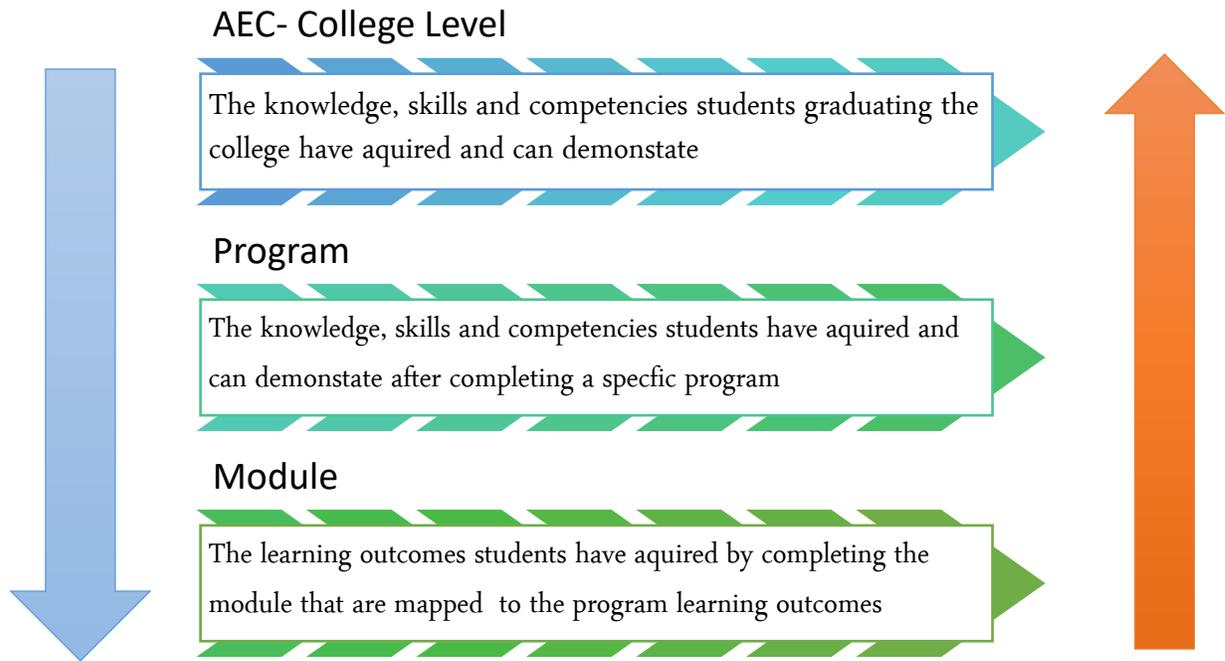
I=Introduced and assessed

R= Reinforced and assessed

M= Mastery and assessed

Building our AEC curriculum map will not only have pedagogy impact, but it should enhance our student learning outcomes by:

- Focusing on the outcome (learning) of a classroom activity and not the teaching of it
- Develop student-centered teaching not teacher-centered
- Specific, transparent and measurable learning objectives that are communicated through student achievements



1.8 Evaluation Framework

The aim of the Evaluation Framework is to:

1. Promote greater consistency of marking across the AEC assessments
2. Enhance assessors' confidence and ability in using the full range of marks available
3. Help assessors make borderline distinctions
4. Enable students in understanding what is required to gain a mark/grade classification

All students should be part of the assessment process. Developing students assessment literacy is a focus of the AEC and where possible they should be educated on how judgments are made. Where appropriate students should be educated on required assessment standards in order to develop assessment literacy. This should include assessors demonstrating with exemplars if possible how standards could be met and how judgments on performance are established. All departments at the AEC use the following Formation and Weighting of Results Framework:

New Program Design and Approval

Evaluation	GPA Range
Excellent	$4.50 < A \leq 5.00$
Very good	$3.50 < B \leq 4.50$
Good	$2.75 < C \leq 3.50$
Satisfactory	$2.00 \leq D \leq 2.75$
Fail	$0 \leq F < 2.00$

Symbol	Mark	Value									
A+	100	5	B+	89	4.5	C+	79	3.5	D+	69	2.5
	99	5		88	4.5		78	3.5		68	2.5
	98	5		87	4.5		77	3.5		67	2.5
	97	5		86	4.5		76	3.5		66	2.5
	96	5		85	4.5		75	3.5		65	2.5
	95	5		B	84		4	C		74	3
A	94	4.75	83		4	73	3		63	2	
	93	4.75	82		4	72	3		62	2	
	92	4.75	81		4	71	3		61	2	
	91	4.75	80		4	70	3		60	2	
	90	4.75							F	<60	Fail

1.9 Core Teaching and Learning Activities (QAA Ref: B3)

“Identifying effective learning and teaching is complex, as it is influenced by many factors, which vary between individuals and different learning environments. Individuals learn when they acquire new (or modify existing) knowledge, behaviours, skills or values. There are many different ways to teach, all aimed at helping a student to learn. There are many ways to empower learners with the confidence to participate, critically and creatively,” The QAA UK Quality Code for Higher Education B3 (2013),

The nature of the teaching and learning activities will be governed by the proposed PLOs and be aligned to the AEC graduate profile expectations. The delivery of the program could encompass a mixture of face-to-face and online teaching resources. The proposed teaching and learning methods should include:

- Lectures
- Seminars
- Project/ Inquiry- Based Learning Portfolios
- Student- Centered Activities
- Student-led teaching and learning sessions
- Differentiated tasks

The established teaching and learning methods should ensure students have opportunities in and outside the classroom and outside to achieve any required learning objectives, assessment requirements and elements of the graduate profile found in the activity. Furthermore, these teaching and learning activities should be aligned with the AEC teaching and learning framework established by Curriculum Development Committee (CDC) to promote successful learning at the college.

Where students must demonstrate learning in order to meet the needs of the program and PLO’s, Mandatory Teaching and Learning Activities (MTLA) may be implemented. These are required to ensure the students engages in imperative learning and assessment activities that demonstrate

New Program Design and Approval

the achievement of the PLO and the AEC graduate profile. The MTLA will be part of the student requirements in addition to achieving a pass grade see 1.2.6 Evaluation Framework in order to pass. There is no formal AEC regulation that programs set MTLA. Careful attention is required because of the seriousness of their implications. However, they offer program design leaders the opportunities to seek evidence of learning that is imperative the program.

The aim is to promote student attendance, participation and performance in all study sessions

Example:

1.	Students must obtain at least 60% in the exam
2.	Students must attend at least seven of ten tutorials.
3.	Students must complete and meet the deadlines of 60% of all formative assessments
4.	Students must obtain at least 60% for each assignment worth more than 10%.
5.	Students must have completed and passed the assessment of the following sessions: a. b. c.

1.10 Student Workload

The learning and assessment tasks should be scheduled so that the workload is spread reasonably throughout the program. Each module should take into consideration other teaching elements the students might be exposed to during the semester e.g. English, Academic Skills, Mathematics

and Physics. The AEC should encourage a consistent workload allowance across each program dependent upon the year of study. This means all HoDs should ensure:

- Consistent teaching and learning activities involved
- The weight and composition of the proposed assessments
- The student workload is:
 - A. Fair in relation to other year X students.
 - B. Reasonable with students being able to manage it in the set time frame/ deadlines