Competency-based education

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Quality Team – Sharing in preparing the course specifications solved examples based competencies

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Definition of Competency

Competency

- A combination of skills, job attitude, and knowledge which is reflected in *job behavior* that can be observed, measured and evaluated.

- Competency is a determining factor for successful performance

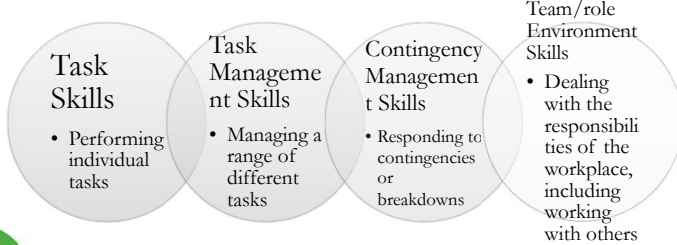- The focus of competency is *behavior* which is an application of skills, job attitude and knowledge.

Competency: definitions

1. **Competence is not a simple addition of knowledge, skills and attitudes. It is the proven ability to use them in a context to achieve results.**

2. **Competence describes what people can do while competency focuses on how they do it.**

Competency: definitions

- **Competency comprises the specification of knowledge and skill and the application of that knowledge and skill to the standard of performance required in the workplace.**
- **Competency covers all aspects of workplace performance.**

Task Skills
- Performing individual tasks

Task Management Skills
- Managing a range of different tasks

Contingency Management Skills
- Responding to contingencies or breakdowns

Team/role Environment Skills
- Dealing with the responsibilities of the workplace, including working with others

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Competency: definitions

- **Competence** is the set of demonstrable characteristics and skills that enable, and improve the efficiency of, performance of a job. The term "competence" first appeared in an article authored by R.W. White in 1959 as a concept for performance motivation.

Competency: definitions

- **Competency** is an alternate noun form of **competent**, which is an adjective. In effect, **competence and competency** are interchangeable, though **competence** is more often used to describe a person's general ability, while **competency** is more often used to describe a person's ability to perform a certain task.

Now slide 8

Competency: definitions

Competence	Competency
1. Skill-based	Behaviour-based
2. Standard attained	Manner of behaviour
3. What is measured	How the standard is achieved.

Competency: definitions

In the context of the European Qualification Framework, *"competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development"*.

According to IEEE Reusable Competency Definition (RCD), a *"competency is defined as any form of knowledge, skill, attitude, ability or educational objective that can be described in a context of learning, education or training"*.

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https://ar.wikipedia.org/wiki/جدارة

- **الجدارة** أو **القدرة** (بالإنجليزية Competence) هي: إمكانية الفرد لعمل وظيفة معينة بشكل مناسب.
- الجدارات هي مجموعة من السلوكيات المعروفة في تشكل دليل مرتب لتمكين التعرف، التقييم والتطوير لسلوكيات الفرد الموظف.
- كلمة جدارة ظهرت أول مرة في مقال باللغة الإنجليزية للكاتب *أر دبليو وايت* في 1959 كنظرية لحافز الأداء.

وَتَرَى الْجِبَالَ تَحْسَبُهَا جَامِدَةً وَهِيَ تَمُرُّ مَرَّ السَّحَابِ ۚ صُنْعَ اللَّهِ الَّذِي أَتْقَنَ كُلَّ شَيْءٍ ۚ إِنَّهُ خَبِيرٌ بِمَا تَفْعَلُونَ (88)

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In your opinion how you will define Competency

Quality of Doing Skills According To

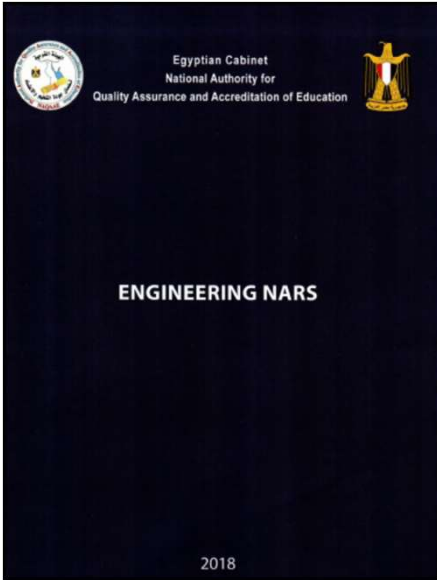## Certain Standards

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حتى الان لم يتم إصدار نموذج قياسي لتوصيف مقرر دراسي يعتمد على الجدارات

<mark>من الهيئة القومية لضمان جودة التعليم والاعتماد</mark>

وما يلي هو اجتهاد من فريق وحدة التطوير المستمر وتوكيد الجودة
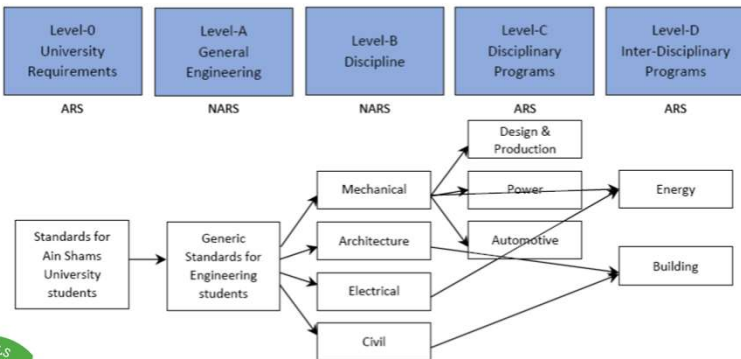
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Egyptian Cabinet
National Authority for
Quality Assurance and Accreditation of Education

ENGINEERING NARS

2018

NARS 2018

NAQAAE – NARS 2018

NATIONAL ACADEMIC REFERENCE STANDARDS (NARS-2018)

Level-0 University Requirements	Level-A General Engineering	Level-B Discipline	Level-C Disciplinary Programs	Level-D Inter-Disciplinary Programs
ARS	NARS	NARS	ARS	ARS

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Standards for Ain Shams University students → Generic Standards for Engineering students → Mechanical, Architecture, Electrical, Civil

Mechanical → Design & Production, Power, Automotive

Power, Automotive → Energy

Architecture → Building

SKILLS — KNOWLEDGE — ABILITIES

Figure 2 Different Levels of Competences as per NARS 2018, as published by NAQAAE.

Electrical Power & Machines Program

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In addition to the competences for all Engineering Programs (A-Level) and the competencies for the Electrical Engineering Discipline (B-Level), the Electrical Power and Machines Engineering Program graduate must be able to (C-Level):

C1. Identify and formulate engineering problems to solve problems in the field of electrical power and machines engineering.
C2. Analyze the performance of electric power generation, control and distribution systems.
C3. Design and perform experiments, as well as analyze and interpret experimental results related to electrical power and machines system.
C4. Test and examine components, equipment and system of electrical power and machines.
C5. Integrate electrical, electronic and mechanical components and equipment with transducers, actuators and controllers in creatively computer-controlled systems.
C6. Apply modern techniques, skills and engineering tools to electrical power and machines engineering systems.

Solved Example:
Course Specification EPM 115

Prof. Gamal Hashem – Solved Examples

Course Specification

1. Basic Information

EPM 114	Electric Circuit		3 CH
Prerequisites	PHM 022 – Electricity & Magnetism		
Number of weekly Contact Hours			
Lecture		Tutorial	Laboratory
3 H		1 H	1 H
Required SWL	150 H	Equivalent ECTS	6
Course Content			

According to Bylaw 2018:

Electrical circuit variables and elements, Simple resistive circuits, Analysis of electrical circuits, Source transformation, Network theorems, Star-delta transformation, Sinusoidal steady state analysis, Phasor diagram representation, Application of network theorems on alternating current circuits, Electric power in alternating current circuits, Complex power

Next Step – Roadmap

1. Review course specification-based ILOs (bylaw 2003).
2. Collect all info related to your course from bylaw 2018.
3. Use the available course specification (CS) to fill all required info.
4. Use the FOUR available solved course specifications SOLVED examples to help, how to complete your course specification if required.
5. Send your final CS to related department coordinator / unit head for final review.
6. Final version to be distributed and discussed with course enrolled students in the first week of the semester.

Supporting Materials

1. This ppt
2. Bylaw 2018
3. NARS 2018
4. Guidelines to course design
5. Course competency guidelines
6. Template for CS
7. Solved example EPM 114 **(Dr. Gamal Hashem)**
8. Solved example CEP 341 **(Dr Haytham Zohny)**
9. Solved example ARC 151 **(Dr Hanan Sabry)**
10. Solved example CEI 111 **(Dr Mona Hagrs)**

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