

# تحديث استراتيجية التقييم



Menoufia Faculty of Medicine  
Accredited

## كلية الطب – جامعة المنوفية



# **Updating of Strategy of Assessment**

**Faculty of Medicine - Menoufia University**

**By**

**Measurement & Assessment Unit**

**updated by**

**Prof. Rania Ibrahim Yassien**

**Executive Manager**

**of**

**Measurement & Assessment Unit**

**(2024)**

**اعتماد مجلس الكلية 2024**

**After the Projects Unit of the Supreme Council of Universities completed the measurement and evaluation project and received the unit and the examination laboratory on 9-1-2021:**

The unit is responsible for all aspects of measurement and assessment including:

- 1) Training of staff & assisting staff on the methods of development of students' assessment (Written, practical & clinical exams), also training on program evaluation (blue print & item analysis)
- 2) Revision of written examination papers with delivering feedback to the concerned departments
- 3) Supervision and appraisal of clinical & practical exams with delivering feedback to the concerned departments
- 4) Item banks & electronic exams
- 5) Setting the criteria of choosing who are involved in the assessment process

**undergraduate students' program (5+2)**

This will require updating of some assessment methods according to instructions of the Supreme Council of Universities (SCU). **So, there was updating in the form of some additions to the previous strategy (2019-2024) which is an ongoing strategy**

# Executive Team

**Manager of Unit  
(Dean of Faculty)**

**Executive manager**

**Training Committee**

**Item Bank Committee**

**Electronic Exam Committee**

**Electronic Correction Committee**

**Revision of Written Exams Committee**

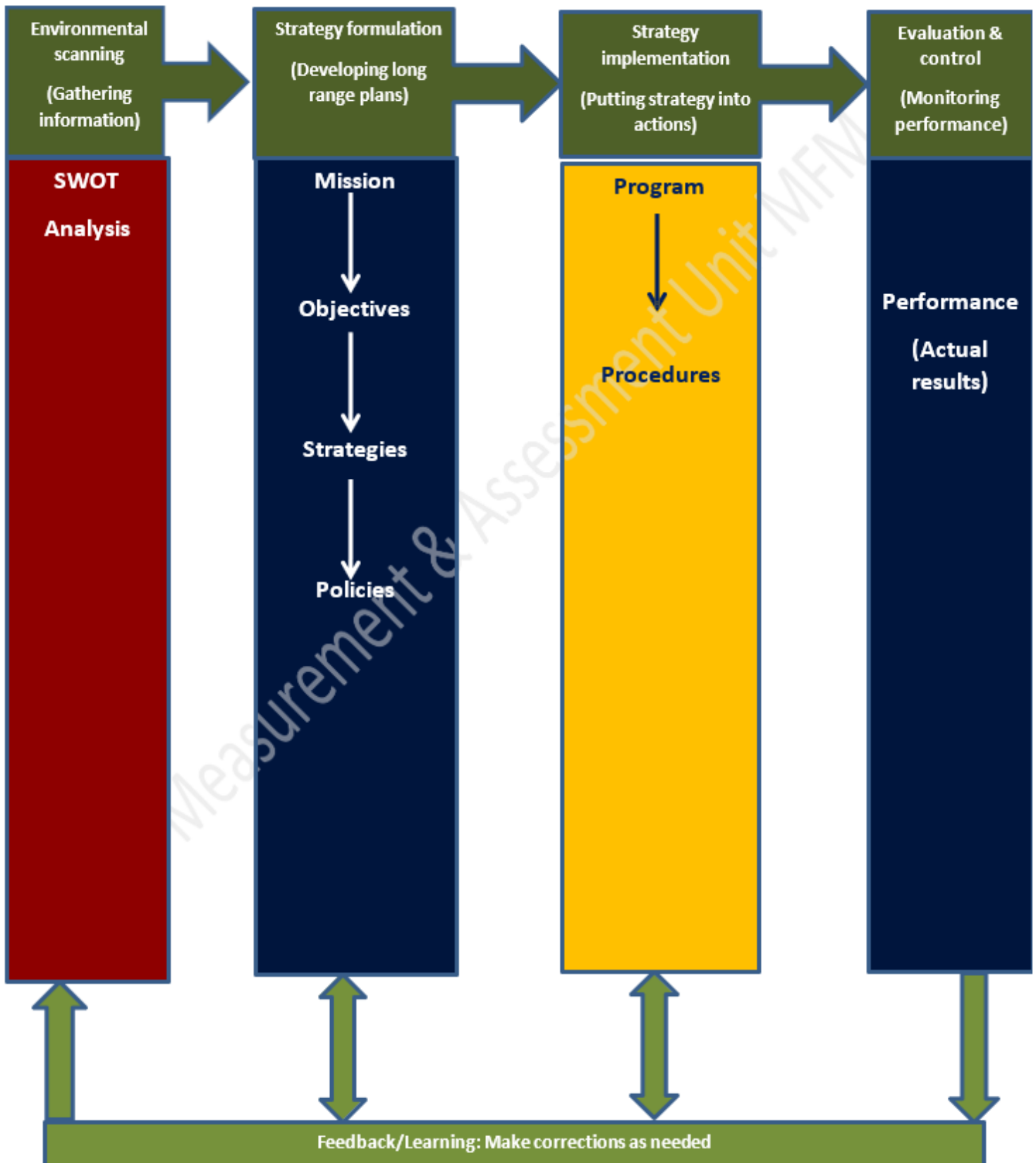
**Supervision of Practical & Clinical Exams Committee**

**Program Evaluation Committee**

**Performance Appraisal Committee**

**Statistics & Public opinion Screening Committee**

# Strategic Management Model



# ***Environmental Scanning***

## **SWOT analysis**

<b>Strengths</b>	<b>Weaknesses</b>
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Measurement & Assessment Unit MFM

<p>The policy of the state regarding the construction of Measurement &amp; Assessment centers in the Egyptian Universities with great attention to the development of assessment methods</p> <p>The president instructions about generalization of electronic exams in all faculties in Arab Republic of Egypt</p> <p>Qualification of manager of Measurement &amp; Assessment Unit regarding Medical Education (Medical Education Diploma).</p> <p>Qualification of head of the committee regarding training (TOT) to be able to train staff members who will share in the formation of item banks</p> <p>* suitable infrastructure for implementation of electronic exams</p> <p>* Suitable number of computers to train and examine students on electronic examinations and implementing them</p> <p>The new undergraduate students' program (5+2) with stressing on the development of assessment methods</p>	<ul style="list-style-type: none"> <li>* Lack of critical mass of staff members who are qualified in Medical Education or assessment</li> <li>* Resistance of many departments to share in renewing questions in the item bank</li> <li>* Lack of stable source of electricity</li> <li>* Lack of stable internet</li> <li>* Lack of financial resources for the external reviewers</li> <li>* Lack of financial resources for any repairs in the Measurement and Evaluation Center and the Testing Laboratory</li> </ul>
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<b>Opportunities</b>	<b>Threats</b>
<p><b>* Updating of National Academic Reference Standards (NARS) for faculties of Medicine with providing of international educational standards that could be adopted</b></p> <p><b>* Presence of successful trials about strategies of assessment</b></p>	<p><b>* Need for the faculties of Medicine in Egypt to be recognized by the World Federation of Medical Education (WFME)</b></p>

Measurement & Assessment Unit MFM



# ***Strategy Formulation***

Measurement & Assessment Unit (EM)

## Vision

To become the top-ranked faculty among all faculties of Egyptian universities regarding quality of exams

## Mission

To develop students' exams in Faculty of Medicine, Menoufia University regarding objectivity, reliability, comprehension, validity and ensuring testing different types of skills together with developing attitude

## Goal One

To develop the written examinations in Faculty of Medicine, Menoufia University to become mostly formed of items measuring applied knowledge not memorizing

## Objectives

### **1) By the end of December 2023, 100% of staff & assisting staff**

**members who are instructors for first year students will be able to:**

- a) construct the single best answer items in an appropriate manner.
- b) compose vignettes in an appropriate way and according to the competency to be tested.
- c) compose integrated vignettes.
- d) support the use of items which test applied knowledge in the faculty.
- e) believe that using items which test applied knowledge in written exams will lead to graduation of competent doctors.

### **2) By the end of June 2024, 100% of staff & assisting staff members who are instructors for students of 2nd to 5th year of new students' program (5+2) will be able to:**

- a) construct the single best answer items in an appropriate manner.
- b) compose vignettes in an appropriate way and according to the competency to be tested.
- c) compose integrated vignettes.

- d) support the use of items which test applied knowledge in the faculty.
- e) believe that using items which test applied knowledge in written exams will lead to graduation of competent doctors.

## **Goal Two**

To achieve fairness by determining the cut-off scores of the different items in exams through using Angoff method

### **Objectives**

**1) By the end of December 2023, 50% of staff members will be able to:**

- a) realize the idea and aim of standard setting.
- b) implement Angoff method in perfect way.
- c) believe that using this method will achieve fairness.

**2) By the end of June 2024, 100% of staff members will be able to:**

- a) realize the idea and aim of standard setting.
- b) implement Angoff method in perfect way.
- c) believe that using this method will achieve fairness.

## **Goal Three**

To form item banks in all departments in Faculty of Medicine, Menoufia University

### **Objectives**

**1) By the end of march 2024, 100% of departments will have completed the formulation of new questions of item banks**

**2) By the end of July 2024, 100% of item banks will have been revised by experts from other universities**

**3) By the end of October 2024, 100% of item banks will have been entered on the specific software**

**4) By the end of December 2024, at least 50% of departments will have used these item banks in delivery of written exams**

**Goal four**

To implement electronic exams for undergraduate students

**Objectives**

- 1) By the end of December 2023, at least 20% of written exams will be delivered electronically**
- 2) By the end of June 2026, 100% of written exams will be delivered electronically**

# Strategy

The following is the strategy of Assessment methodology stated in the strategy 2019-2024.

## Strategy of Assessment Methodologies

### Introduction

Assessment has played and continues to play a central role in medical education. Assessment in medical education is multifaceted. It drives and stimulates learning, provides information on educational efficacy to institutions and teachers, and protects patients.

### 1) Students' assessment methods are based on ILOs:

#### a) Recall of knowledge and understanding: Written exam

MCQs, Short/Restricted answered questions & well-structured short essay

#### b) Intellectual skills:

- **Within written exam:** MCQs with vignettes, extended matching questions (EMQs), problem solving questions, short answered questions (SAQ) with question focus in the form of vignette or photo or graph or....., well-structured short essay testing higher order cognitive functions.
- **Within clinical exam:** Objective Structured Clinical Exam (OSCE) with response stations (Requiring analysis and interpretation)
- **Within practical exam:** Objective Structured Practical Exam (OSPE) with response stations (Requiring analysis and interpretation)

#### c) Clinical/Practical skills:

OSCE with procedure stations OSPE with procedure stations

#### d) General & transferable skills:

- Home assignments
- Presentations

## 2) Criteria of a valuable test:

- \* **Construct validity:** The ability of the test to measure what it is supposed to be measured.
- \* **Content validity:** The extent to which the test covers the subject, discipline or domain is called its content validity. When an examination is carefully designed through good selection and weighting of the topics to be assessed it is described as having content validity (This is closely related to the concept of blueprint).
- \* **Objectivity:** The degree by which learned and independent examiners agree to the correct answer.
- \* **Reliability:** The consistency of the test scores over time, under different testing conditions, and with different raters.
- \* **Educational impact:** Examinations drive learning; this hypothesis describes one of the strongest relationships in education. Trainees wish academic success, and academic success is defined by examinations, therefore, students will do everything to maximize their chances of success. The way the exam is conducted also affects the way students learn. An instrument that drives students to learn more in depth is said to have high educational impact.
- \* **Comprehension:** The tests should cover the whole curriculum regarding the testing of knowledge, skills and attitude
- \* **Practicability:** The easiness and feasibility of the test to be administered.
- \* **Acceptability**
- \* **Cost effectiveness**
- \* **At the proper level of difficulty.**
- \* **Feasibility in terms of time.**
- \* **The utility index:** The 'utility index', described by Cees van der Vleuten in

1996, serves as an excellent framework for assessment design and evaluation.

Utility = Educational impact x validity x reliability x cost x acceptability

### 3) Essential criteria in every written exam:

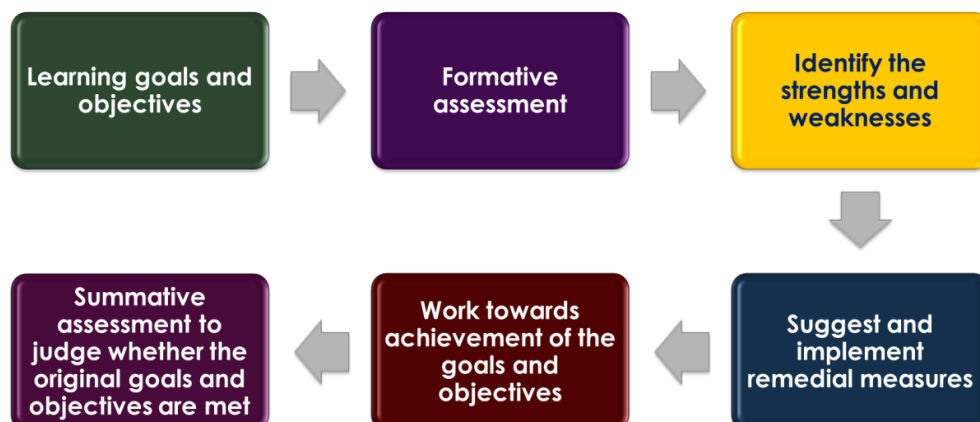
*The following criteria must be fulfilled:*

- \* **Use of blend of questions:** There is no single type which is optimal, but a blend of types can produce an assessment which is “fit for purpose”.
- \* **Use of a suitable percentage of objectively structured questions (Not less than 70%).**
- \* **Use of a suitable percentage of questions measuring understanding and intellectual skills (Not less than 60%).** The exam which tests recall of knowledge only is no longer accepted internationally.
- \* **Presence of model answers**

- Specially prepared model answers must be present. They must be clear and readable. Copied and hand written model answers are not accepted. They must not contain extra data or missing data.

- For essay question, prepare a rubric. This is an essential requirement. The rubric is the detailed model answer prepared by the examiner. However, it is classified into partitions according to the allocated marks for each partition to guide the rater during correction.

### 4) Use of formative & Summative Assessment:



**5) Quality of the examination questions: Questions are formulated according to the most recent methods in Medical Education:**

**A) Subjective:** Short essays (Must be not more than 30% of questions), {Long essay is forbidden}

**B) Objective:**

1. Multiple choice questions (MCQs).
2. Extended matching questions (EMQs).
3. True/False.
4. Supply items.
5. Problem solving (If properly constructed).
6. Short /restricted answered questions (SAQ/RAQ).

**Short essay question**

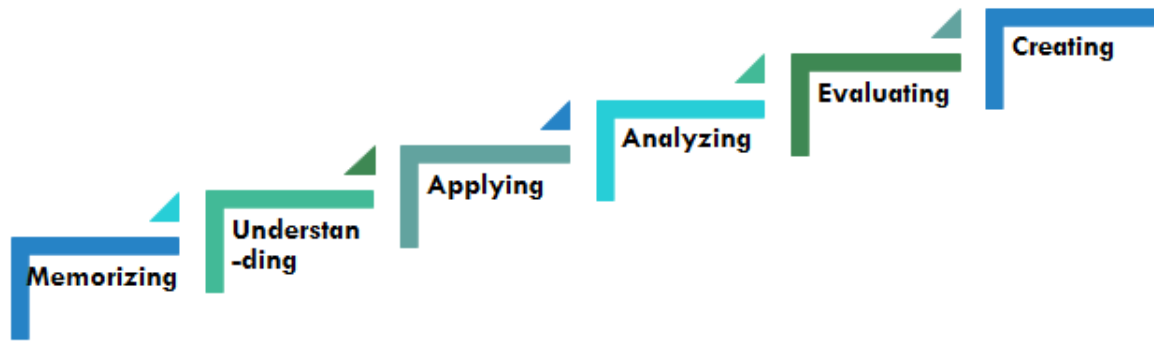
*Criteria to be fulfilled*

- \* Clear and unambiguous wording are used.
- \* Itemization of the question is done (In each topic, specify the parts needed to be written by the student. For example, etiology, pathology, clinical manifestations or management.....etc).
- \* Defined mark for each item is put to make expectations clear.



- \* Action verbs are present at the beginning of the question. They are chosen from **Bloom's taxonomy** of action verbs. Every action verb is chosen according to the level required to be tested

## Bloom's Taxonomy



### MCQs

*Criteria to be fulfilled*

#### Making sure of

- \* The stem is comprehensive and branches are short: The stem should contain all the facts of the matter. The branches should only outline the possible answers.
- \* The question is relevant and has been taught in the curriculum.
- \* Cannot be guessed: It should not be possible to guess the right answer. The correct choice should rely on the candidate knowing the relevant material.
- \* The grammar and sentence construction are correct.
- \* Familiar words are used from the course consistently.
- \* Homogenous distractors are used:
  - If diagnosis then all diagnostics.
  - If therapy then all therapeutics.
- \* Plausible distractors that make sense are used, but less correct than the correct option.

## Avoiding of

- \* Uncommon terminology and abbreviations.
- \* Double negatives.
- \* Interior blank in the stem because it is a cognitive load
- \* Using “all of the above” and be careful about “none of the above” options. Also, avoid A&B, C&D....etc
- \* Questions dependent on previous one/s (High risk).
- \* Imprecision: Avoid vague terms as “can”, “may”, “usually, often, sometimes,....
- \* Absolute terms as never, must, always,.....etc
- \* Options that are long and complicated (These shift what is measured by the question from knowledge to reading speed).
- \* Except and not
- \* Clues (Guessing):

### Examples of clues:

- Grammatical: Wrong grammar in distractors
- Contextual/logical clues: Distractors are not in line with the context of the stem.
- Long correct statements

## **Extended matching questions (EMQs)**

### *Criteria to be fulfilled*

- Structure

EMQ is formed mainly of four elements:

- a) Theme: This merely defines the topic on which the question is going to be based (e.g. respiratory distress).
- b) Task: This tells the candidate what are being asked to do.

c) Stems: These are the actual scenarios on which the task is based. Typically they are simple clinical conditions.

d) Options: There are normally between six and twenty five items from which the candidate chooses the answer. The list should be short enough to be scanned quickly by the candidate, but long enough to make guessing useless.

- Making sure of:

- \* Options are in one page.
- \* Clear directions are present.

- Avoiding of:

- \* Long stems and options.
- \* Heterogeneous content. **True/False question** Criteria to be fulfilled

- Making sure of:

- \* Every sentence contains only one central idea (knowledge or concept).
- \* The idea is indisputable.
- \* Clear and unambiguous wording are used.
- \* The same number of true and false statements (50%/50%) or slightly more false statements than true (60%/40%). Students are more likely to answer true.

- Avoiding of:

- \* Long /complex sentences.
- \* Negatives and double negatives.
- \* All, whole, only, always, may, sometimes, often,.....

## **Problem Solving Questions**

### *Criteria to be fulfilled*

- Constructing questions that are specific (Specifying the type and quantity of answer required e.g. enumerate two investigations). It is preferable to formulate the questions in the form of objective questions not short essays. This will render the questions more objective and reliable.
- If the sub-questions are in the form of short essays, conditions of writing good short essays must be considered.
- Providing information that is not pre-interpreted (raw) (e.g. instead of reporting pulse deficit or liver enlargement, it is better to report the pulse rate or the size of the liver.....and so on).
- Providing sufficient negative information (e.g. There is no rebound tenderness).

## **Short/restricted answered questions (SAQs/RAQs)**

### *Criteria to be fulfilled*

- Structure

SAQs are generally constructed around a theme followed by several focused questions. Each question bears separate mark that is clearly indicated in the question paper. Sometimes, SAQ is formed as one separate question with no question focus

- The only action verbs used in this type are name, enumerate or list

## Formative and summative assessment

An easy distinction between formative and summative assessment:

Formative assessment is assessment for learning. Its focus is on future achievement.

Summative assessment is assessment of learning. It assesses what has been learnt in the past.

However, formative and summative assessment are *interconnected*. They seldom stand alone in construction or effect.

### Modification in strategy of Assessment Methodology in 2018

- 1) Percentage of objective questions must be 70% or more.
- 2) Percentage of questions measuring intellectual skills must be 60% or more.
- 3) Every exam must be composed of at least 3 out of 5 types of questions that are valid now in medical education, which are Single Best Answer (SBA), Extended Matching Questions (EMQ), Short Answer Questions (SAQ), Short essay and problem-solving questions.
- 4) Use of True/False and complete questions is obsolete now. Any T/F question must be converted to SBA and any complete question must be converted into SAQ.
- 5) Every exam must have 50% of its marks allocated to SBA with vignettes and the other 50% are allocated to any other valid questions (This was the system of Menoufia faculty of Medicine that had been announced to the medical education development committee in Supreme Council of Universities)
- 6) There must be a blend of action verbs in short essay questions. Blend means presence of action verbs related to different cognitive levels of Bloom's Taxonomy, also use of

different verbs when the same cognitive level is measured in many questions (This is automatically adjusted if there is a blueprint).

- 7) Extended Matching Question (EMQ) must be designed in its classic form (Theme, Task, Scenarios and Options). Avoid use of 2 columns from now.
- 8) Be sure that the sub-questions of the problem- solving question cannot be answered without viewing the case scenario.
- 9) Use objective sub-questions under the case scenario of problem- solving question as possible.
- 10) Be sure that “Cover the options rule” of MCQs is applicable i.e. the knowledgeable student can answer the question correctly after seeing the stem and lead-in question without seeing the options.
- 11) Lead-in of MCQ must be always in the form of question not incomplete statement with use of “which one of the following.....?” (either in the beginning or middle of the lead-in)
- 12) Avoid use of “Except” and “Not” in stems of MCQs. Also, avoid all types
- 13) of clues.
- 14) All MCQs must test applied knowledge not just recall of knowledge.
- 15) There must be complete model answer: Computerized, not copied from a book and customized with presence of a rubric for every essay question.
- 16) There must be a full commitment to the template of the exam paper sent from Measurement & Assessment Unit.

## **Modification in strategy of Assessment Methodology in 2024**

- 1) Establishing electronic exams for the Colleges of Medicine, Dentistry, Nursing, and Health Sciences Technology,
- 2) Automatic correction of the Babel Sheet is carried out for the same previous colleges.

- 3) Electronic correction of non-subjective essay questions was carried out for faculty members
- 4) The College Council's decision was taken on 1/5/2021 to take corrective measures to cancel questions that are extremely difficult and do not meet specifications after statistical analysis of the results of automated correction.
- 5) Multiple courses were conducted to raise the culture of measurement and evaluation for faculty members
- 6) Ensure the implementation and follow-up of all provisions of the 2018 strategy



## ELECTRONIC EXAM

- For students, they are divided according to their number, meaning that the laboratory accommodates about 275 students in one exam. If the exam was final, we would submit the increase clauses in the Faculty of Artificial Intelligence, and we would submit the same exam for them and examine the rest of the students.
- If the exam is a End Module, there will be multiple exam models, and we will put students into groups at sequential times.
- Questions are uploaded in Template to the Excel program and are presented in a specific, detailed way in terms of the degree of difficulty, ease, and number of choices. If there are pictures, they are uploaded as well.
- The questions are sent to each student differently from the other in the Shuffling system of choices, meaning that one question may come to two students next to each other, but the answer is different.
- The question appears to the student at a certain time and disappears after the specified time has expired

- The monitoring is done by the surveillance cameras system in the lab. These are IP cameras connected to the rack in the data center room on the fourth floor and connected by a LAN cable to a screen and an NVR device in the lab so that the monitoring is done through it, and the monitoring is done by the monitors who are nominated by Student Affairs at the time of the exam.



# ***Strategy Implementation***

Measurement & Assessment Unit (MAU)

## Goal One

To develop the written examinations in Faculty of Medicine, Menoufia University to become totally formed of items measuring applied knowledge not memorizing

### ***Name of programs***

- 1) Training of staff and assisting staff in different departments about the methods of composing single best answer items with integrated vignettes.
- 2) Communication of feedback (In the form of written report) about every exam to the scientific departments sharing in the modules for the purpose of development.

### **Program (1) Activities**

- 1) Delivering a new training course of Assessment Development.
- 2) Delivering a written “Guide” to different departments about the modified methods of assessment in written exams.

### **Action Plan**

	<b>Action Steps</b>	<b>Responsibility</b>	<b>Start-End</b>
1	a) Preparation of the scientific content of the training course	Manager of the unit Prof. Rania Yassien	1/3/2023- 1/5/2023
	b) Delivering of the course	Manager of the unit	15/5/2023 for 3 days and repeated every two weeks
2)	a) Authoring of a “Guide” about modified methods of assessment in written exams	Manager of the unit Prof. Rania Yassien	10/10/2023- 10/11/2023

	b) Delivering of the written “Guide” to different departments about the modified methods of assessment in written exams	Manager of the unit Prof.Rania Yassien	10/11/2023-20/11/2023
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## Program (2) Activities

- 1) Preparation of a feedback (Written report) about the written exam according to the previously mentioned checklist
- 2) Delivering the feedback to the concerned scientific departments in the module.

### Action plan

	Action steps	Responsibility	Start-End
1	a) Preparation of a feedback (Written report) about the written exam according to the previously mentioned checklist	Members of the unit	After the end of the exam
	b) Peer revision of the report	Members of the unit	After end of initial preparation of the report
	c) Final revision of the report	Manager of the Unit	After finishing of the peer revision
2	Delivering the feedback to the concerned scientific departments in the module	The member who prepared the report, the peer reviewer, the Manager of the unit and members of scientific departments	Maximum 10 days after end of the exam

## **Goal Two**

To achieve fairness in by determining the cut-off scores of the different items in exams through using Angoff method

### **Program**

Training of staff members on Angoff method on Assessment Development course according to the schedule mentioned above

## **Goal Three**

**Program:** Construction of high quality item banks in all scientific departments in Faculty of Medicine, Menoufia University

### **Activities**

- 1) Formation of questions by all staff members in the faculty who share in the teaching process
- 2) Revision and appraisal of item banks by external expert reviewers
- 3) Entering the item banks on the software

## **Goal Four**

**Program:** implementation of electronic exams in all exams of Faculty of Medicine, Menoufia University

### **Activities**

- 1) Allocation of a suitable place for electronic exam
- 2) Preparation of the suitable required infrastructure
- 3) Bringing of the computers which will be delivered through the Ministry of communication
- 4) Providing a suitable stable internet
- 5) Providing generators to ensure stable electric current
- 6) Providing the electronic exam hall with cameras for safety
- 7) Providing suitable measures to ensure safety

## **Evaluation & Control**

- 1) Revision of different exams by the Measurement & Assessment Unit with delivery of an accurate report of feedback as in the original strategy (2019-2024)
- 2) Internal auditing by the Measurement & Assessment Unit to ensure implementation of Angoff
- 3) External auditing for item banks by experts

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