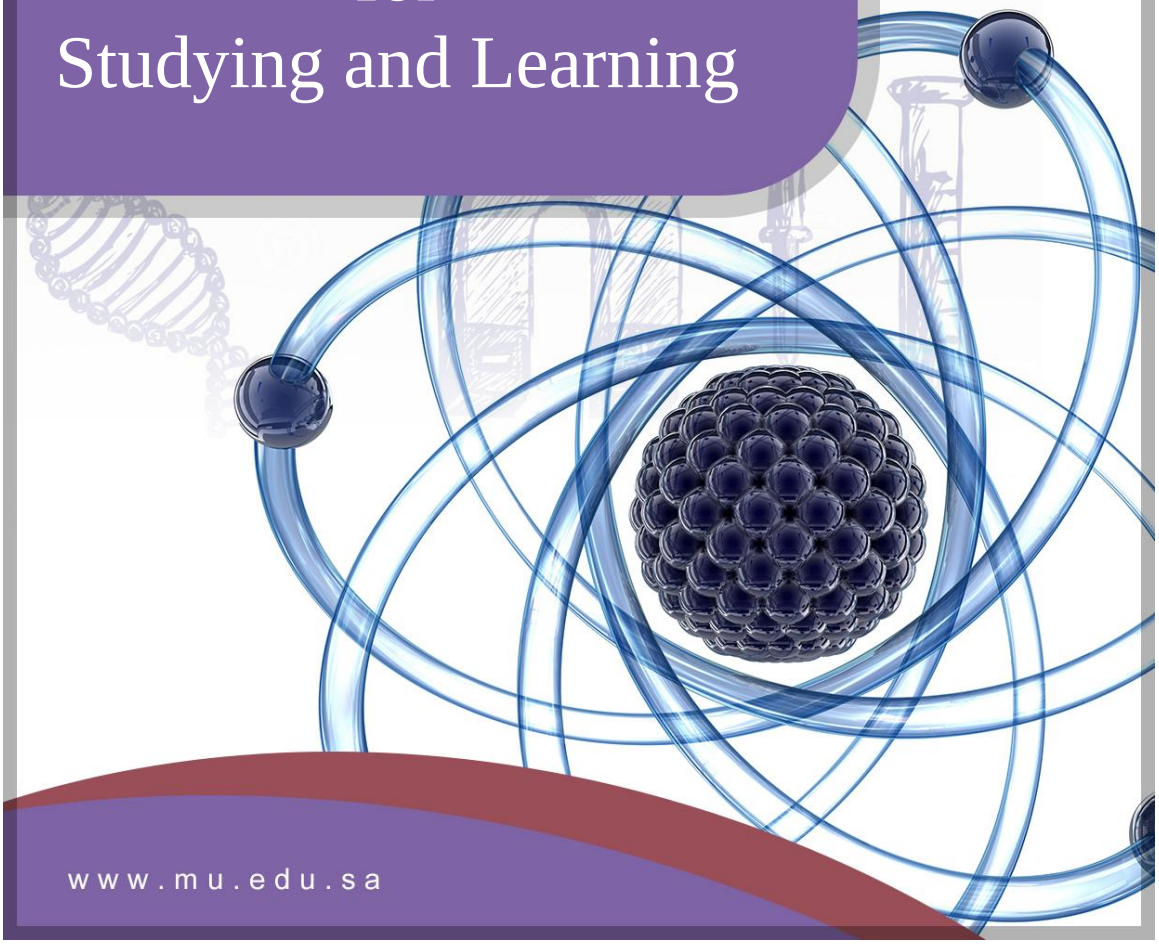
Ministry of higher education
Majmaah university
College of Science
Department of Physics

وزارة التعليم العالي
جامعة المجمعة
كلية العلوم
قسم الفيزياء

جامعة المجمعة
Majmaah University

Quality Guide for Studying and Learning



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PHYSICS ROAD MAP FOR PROGRAM ACCREDITATION

- After summer vacation; in the three weeks before the beginning of the first semester, several sessions will be held for all faculties to practice how to do course objectives, learning outcomes, level of learning, and mapping.

- Therefore, by the first week of the academic semester, Physics will have program vision, mission, objectives, and learning outcomes, as well as each course catalogue data including objectives and learning outcomes.

- During the first week of the semester, each Physics student will be handed a copy of the program vision, mission, objectives, and learning outcomes.

- Each faculty member will give each student a copy of the course catalogue he is teaching. A statement that the student receives such a copy will be signed by the student.

- The faculty will spend the first week explaining to the students the meaning of the program and course objectives and learning outcomes, the competencies and their level of learning, the different requirements to pass the specific course, and the procedure to implement and evaluate the outcomes. One or two seminars on accreditation and program continuous improvement will be given to the students to put them in the mode of Program Continuous Quality Improvement.

- Several committees will be formed to look at interrelated courses; regarding the contents, overlapping, credit hours, prerequisites, etc.

- The Department Quality Unit (DQU), through discussions with the different groups, will decide which course will cover which outcomes and in what level.

- The DQU with consultation with the academic groups will set up a map for implementing program objectives which may call for reduction of credit hours of some courses, or even eliminating one or two courses in order to introduce the Physics soft skills; this needs the support of all faculties.

- Each semester, starting the first semester 1432/1433, graduating seniors will be asked to respond to questionnaire (Graduating Senior Exit Survey).

- Student Advisory Committee will be performed from well spoken students. This committee will have meetings with the DQU in order to have informal feedback about the Physics program.

- Each Fall Semester, 1, 2 and 5 year out alumni will be identified and email (home or work address) lists will be created. Email (handout to home or work address) will be sent providing information and request to respond to questionnaire (Former Student Survey). 1 and 2 year out questionnaire includes questions on program outcomes.

- Request includes asking alumnus to ask supervisor to fill out questionnaire also (Employer Survey). Other way is to identify and prepare a list of the employers of our graduates and correspond with them directly.

- Questionnaires (Surveys) will be hosted on the internet.

- Responses obtained by semester's end are processed.

- Placement data will be obtained each semester.

- DQU will set up the assessment rubrics for each program outcome and each faculty member will get a copy of this assessment rubrics.

- DQU will set up the program assessment methods/metrics for each program outcome, followed by a seminar and open discussion for all faculty members.

- DQU will prepare "Course Assessment Form" that will be filled by the faculty. "Student Sign Off Form for Physics Course" will also be prepared.

- Early Spring Semester, DQU receives data and reviews and sorts information. DQU is responsible for directing the data to the appropriate place, such as curriculum committee, academic groups, etc., and obtaining a written response on any action taken in response to the data.

- Any action to be taken should be known by the end of spring semester and should be in place by beginning of the next Fall.

- This cycle will produce a time history which should show improvements in the program over time. After several cycles pass, this result can be demonstrated graphically.

- Additionally, individual course data will also be processed at the same time and DQU will process that data each Fall semester from the previous year. DQU will forward that data to the appropriate faculty member in charge.

- By the end of Fall 1432/1433, Self-Study Report will be written.

Assessment Glossary

***Assessment Criteria*:** Stated levels of performance for each assessment method that will be used to guide decisions and set priorities for improvement.

***Assessment Method*:** An instrument or other type of data collection technique designed to elicit evidence to measure an outcome indicator or series of outcome indicators. Portfolios, alumni surveys, peer surveys, employer surveys, rubrics, faculty rating forms, course evaluations, focus groups, pre- and posttests, senior design projects, placement data, self-assessments, documented subjective evidence, exit interviews, classroom assessment techniques, etc. are examples of assessment methods.

***Audit*:** An independent review and evaluation of the outcomes of the quality assurance processes an institution or part of an institution, or a form of a program.

***Benchmarks*:** Points of comparison or levels of performance used for establishing objectives and assessing performance. Benchmarks may be current levels of performance at an institution, standards established by an external agency, or standards of performance at another institution or group of institutions selected for comparison.

***Course*:** A systematic program of study normally over a period of one semester or calendar year and designed to develop specified learning outcomes as part of a program.

***Course Specification*:** A detailed description of a course including the topics or units of work to be studied, the intended learning outcomes and the methodology and resources used to develop those outcomes including details of staffing text and reference material, and requirements for resources and equipment. A course specification includes methods of student assessment and course evaluation including indicators and benchmarks to be used.

***Course Portfolio*:** A collection of documents and notes describing the development, conduct, evaluation and changes in a course. A course portfolio is and ongoing record of what happens in a course and how it is developed and modified over time as a result of feedback during delivery, changing circumstances, and reviews of effectiveness. It should include original specification and amendments to those specifications, data on indicators including results of evaluations of teaching effectiveness and indicators and achievement of benchmarks

relating to learning outcomes. A portfolio should include copies of annual course reports, and summary information about any significant events affecting the conduct or effectiveness of the course. Information contained in course portfolios serves as a primary source of information in the periodic (normally five-six yearly) self-study reports and external reviews for program accreditation.

***Course Reports*:** Reports prepared on the effectiveness of a course including data on indicators and interpretations of evidence on the achievement of learning outcomes, and changes planned in response to that evidence and changing circumstances. Course reports are normally prepared by an instructor each time a course is offered for consideration by program coordinators subsequent course instructors. Copies of Course reports should be included in course portfolios, and form an important part of the information considered in periodic self-studies and external reviews.

***Goal*:** A statement outlining the broad ideas of the program. The University and College goal statements are examples of goals. Goals show where you want to go. There should only be a few of these because they are your major program goals. For example, you might think of these key words when writing your goal statements: theory/knowledge (of engineering principles), practice/application (of engineering principles), awareness (of role in society), and communication (of engineering principles; interpersonal).

***Indicator*:** Measurable examples of an outcome either through observation, self-report, or score. Think of these as a rubric to tell you if your outcomes were achieved. You might wish to develop phrases that could be answered with "yes" or "no." An item on an instrument would be an example of an outcome indicator. Indicators should be as specific as directly related as possible to the aims and objectives to which they relate. However direct measures of some of the most important objectives such as quality of students learning are sometimes difficult to find. Consequently indirect evidence such as student evaluations of programs, employment outcomes, and employer surveys must sometimes be used. Since indirect indicators can be subject to other influences it is usual to use several different but related indicators for important objectives, and to interpret these using some independent system to verify the interpretation.

***Internal Quality Assurance*:** Processes of quality assurance carried out within and by or for a higher education institution. It includes not only the processes of monitoring and review that an institution manages itself, but also its use of outside people from other institutions, from industry or the professions, or from other accreditation or quality assurance agencies to review and provide advice on its programs and activities. Internal quality assurance is normally comprehensive, dealing with inputs, processes and outcomes, with all areas of an institution's activities, and with staff and students in all parts of the institution.

***Learning Outcome*:** A statement derived from an objective that describes what specific result will occur if the objectives are met. Typically, outcomes are student related and state what knowledge and skills are to be acquired and demonstrated by each student by the end of the department's program.

***Level*:** The intellectual standard and complexity of learning expected as students progress through a program of study. The degree of difficulty or complexity of learning increases as students advance through a program and these increases are defined by descriptions of the learning outcomes that are expected.

***Major Change in Program*:** A change that significantly affects the learning outcomes, structure, organization or delivery of a program or the basis for its accreditation.

***Mission*:** A brief general statement setting out the principal policy objectives for the development of an institution or a program. While stated in general terms a mission statement should be sufficiently precise to serve as a guide to planning and decision making at all levels of the organization, and should actually be used as a basis for decision making.

***Objective*:** A statement derived from a goal that is a more specific application of that goal and explains what will occur in terms of knowledge, skills, or abilities if an objective is met. An objective is a statement of how a department is to support the institutional, college and program missions. Objectives are maps of how you are going to get where you want to go.

***Outputs*:** The product of an institution's activities, normally expressed in quantitative terms. Outputs usually refer to quantitative measures of what is produced by an institution, such as the number of graduates or the number of staff research publications.

***Practice*:** An activity that may be a part of a student's educational experience and provides opportunities to learn.

Peer Review: External evaluation and report on a program, institution or part of an institution by expert evaluators from similar institutions or professions who are specialists in the field concerned or with higher education generally.

***Processes*:** The administrative arrangements, policies, and organizational procedures carried out by an institution in planning, reviewing and delivering its programs. Processes are what is done in an institution to use the inputs available to it to produce its outputs and outcomes. The term includes teaching processes, assessment procedures, and processes for managing research

and community activities as well as a wide range of other activities that have direct or indirect impact on educational programs.

***Program*:** A coherent program of study followed by students in an academic field or leading to a professional qualification, the successful completion of which qualifies them for an academic award. A program may include electives or different strands, and may include some courses that also taught in other programs. However to be organized as a program it must be made up of a coordinated group of courses designed to develop a single set of related learning outcomes, and lead to an academic award.

***Program Specification*:** A detailed description of a program including its intended learning outcomes and the methodology and resources used to develop those outcomes. A program specification includes summary descriptions of required and elective courses, methods of student assessment and program evaluation, and the staffing, resources and equipment required. In professional program the program specification should include descriptions of the processes to be used to ensure the continuing relevance of components of the program to the field concerned. Mechanisms should be included in all programs to ensure that the elements of the program remain up to date with the latest research and other developments in the field.

***Program Portfolio*:** A collection of documents and notes describing the development, conduct, evaluation and changes in a program. A program portfolio is and ongoing record of what happens in a program and how it is developed and modified over time as a result of changing circumstances and reviews of effectiveness,. It should include original program specifications and amendments in specifications, data on indicators including summaries for each evaluations of teaching effectiveness and indicators and achievement of benchmarks relating to learning outcomes. A portfolio should include copies of annual (or other) program reports, and summary information about any significant events affecting the conduct or effectiveness of the program. Information obtained in program portfolio serves as a primary information in the preparation of periodic (normally five-six yearly) self-study reports and external reviews for program re-accreditation.

***Program Reports*:** Reports prepared on the effectiveness of a program including data on indicators and interpretation of evidence on the achievement of learning outcomes, and changes planned in response to that evidence and changing circumstances. Program reports are normally prepared annually for consideration by those planning and teaching in a program, and by the department, college or institution. Copies of program reports should be included in program portfolios, and form an important part of the information considered in periodic self-studies and external reviews.

***Quality Assurance*:**

Processes of assessment, evaluation and follow up relating to quality of performance, which serve two distinct purposes. To:

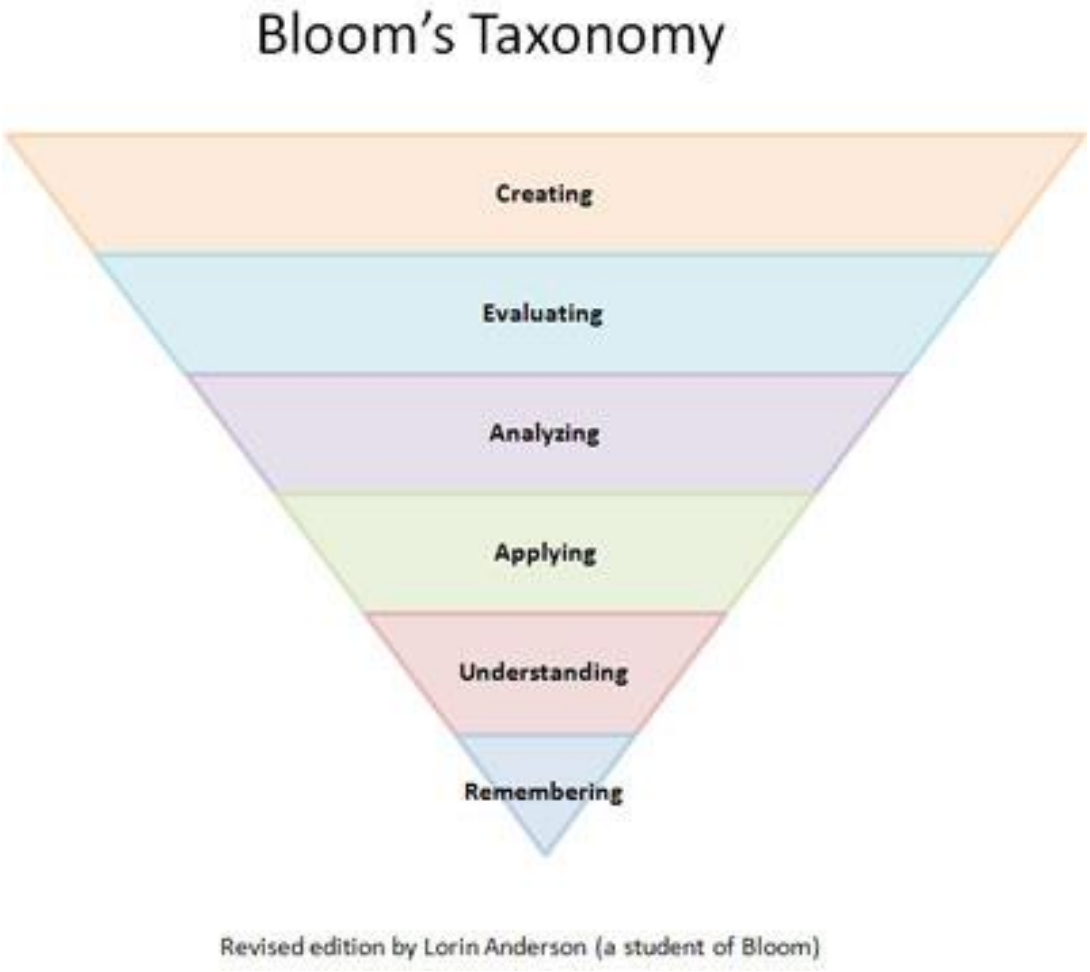
(a) Ensure that desired levels of quality are maintained and improved, and
(b) Assure stakeholders that quality is being maintained at levels comparable to good practice in highly regarded institutions elsewhere in the world. Stakeholders in this context include students, the Government and the wider community, including parents, professional associations and industry.

***Substantial Equivalence*:** A judgment that a unit, subject or other component of a program is equal in quality and equivalent in scope to one offered elsewhere.

***Student Attributes*:** Special characteristics of students developed as a result of the particular policies and teaching strategies of an institution. The development of particular student attributes is often an important part of the mission of an institution. For example, an institution may adopt procedures to ensure students are particularly self-reliant, more creative and entrepreneurial, or more effective than would normally be the case in group situations. The term is normally reserved for attitudes, skills, and habits of behavior or personality characteristics that are exhibited in students' behavior in outside situations rather than for purely academic learning outcomes which may refer to abilities rather than actual behavior.

Bloom's Definition

The cognitive domain involves knowledge and the development of intellectual skills (Bloom, 1956). This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories, which are listed in order below, starting from the simplest behavior to the most complex. The categories can be thought of as degrees of difficulties. That is, the first ones must normally be mastered before the next ones can take place.



***Analysis*:** Breaking down objects or ideas into simpler parts and seeing how the parts relate and are organized.
Verbs: Analyze, appraise, breakdown, calculate, categorize, compare, contrast, criticize, diagram, differentiate, discriminate, distinguish, examine, experiment, identify, illustrate, infer, model, outline, point out, question, relate, select, separate, subdivide, test.

***Application*:** Applying knowledge to actual situations.
Verbs: Apply, change, choose, compute, demonstrate, discover, dramatize, employ, illustrate, interpret, manipulate, modify, operate, practice, predict, prepare, produce, relate schedule, show, sketch, solve, use, write.

***Comprehension*:** Grasping the meaning of information.

Verbs: Classify, convert, defend, describe, discuss, distinguish, estimate, explain, express, extend, generalized, give example(s), identify, indicate, infer, locate, paraphrase, predict, recognize, rewrite, report, restate, review, select, summarize, and translate.

***Evaluation*:** Making judgments based on internal evidence or external criteria.
Verbs: Appraise, argue, assess, attach, choose, compare, conclude, contrast, defend, describe, discriminate, estimate, evaluate, explain, judge, justify, interpret, relate, predict, rate, select, summarize, support, value.

***Knowledge*:** Remembering previously learned information.
Verbs: Arrange, define, describe, duplicate, identify, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state.

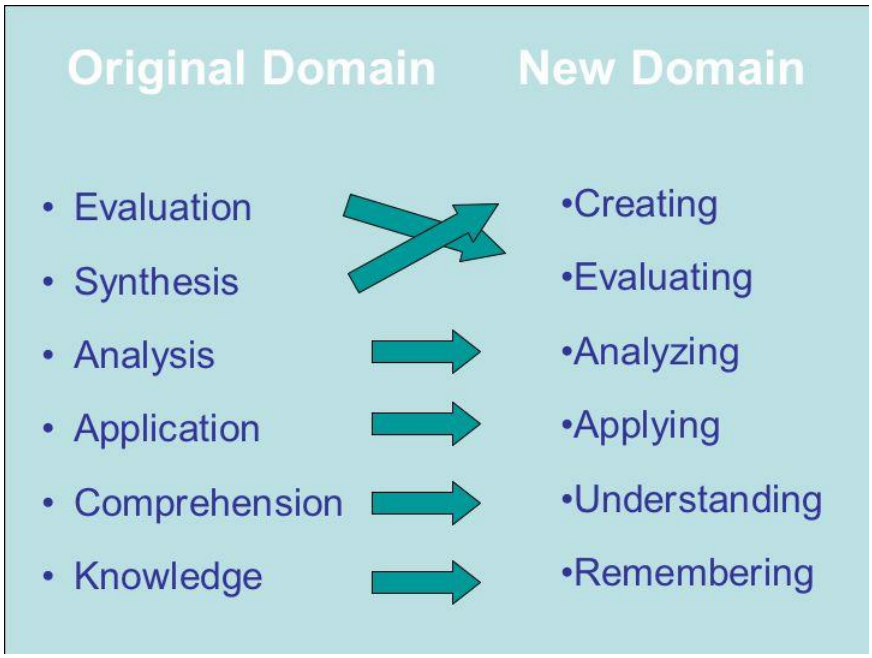
***Synthesis*:** Rearranging component ideas into a new whole.
Verbs: Arrange, assemble, categorize, collect, combine, comply, compose, construct, create, design, develop, devise, explain, formulate, generate, plan, prepare, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, set up, summarize, synthesize, tell, write.

***Valuation*:** Sensitivity/willingness to receive (awareness w/o assessment, willingness to suspend judgment); actively respond (comply, commit, internal satisfaction); Value (acceptance of worth, preference); Organize (when values conflict)
Verbs: Accept, challenge, defend, respect, question, support, enjoy.

Bloom's Revised Taxonomy

Lorin Anderson, a former student of Bloom, revisited the cognitive domain in the learning taxonomy in the mid-nineties and made some changes, with perhaps the two most prominent ones being, 1) changing the names in the six categories from noun to verb forms, and 2) slightly rearranging them (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths, Wittrock, 2000; Pohl, 2000).

This new taxonomy reflects a more active form of thinking and is perhaps more accurate:



- See more at: http://www.nwlink.com/~donclark/hrd/bloom.html#sthash.GKIQOfOH.dpuf

Table of the Revised Cognitive Domain

Category	Example and Key Words (verbs)
Remembering: Recall previous learned information.	**Examples**: Recite a policy. Quote prices from memory to a customer. Knows the safety rules. **Key Words**: defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.
Understanding: Comprehending the meaning, translation, interpolation, and interpretation of instructions and problems. State a	**Examples**: Rewrites the principles of test writing. Explain in one's own words the steps for performing a complex task. Translates an

problem in one's own words.	equation into a computer spreadsheet. **Key Words**: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, and translates.
Applying: Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.	**Examples**: Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test. **Key Words**: applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.
Analyzing: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.	**Examples**: Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training. **Key Words**: analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.
Evaluating: Make judgments about the value of ideas or materials.	**Examples**: Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget. **Key Words**: appraises, compares, concludes,

	contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.
Creating: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.	**Examples**: Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome. **Key Words**: categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.

Activities at Various Cognitive Levels of Learning (LoL)

Bloom's taxonomy of learning objectives is used to define how well a skill or competency is learned or mastered. A fuller description of Bloom's taxonomy is given in the following pages but a brief summary of the activities associated with each level is given below.

1. At **Knowledge** Level of Learning, a student can define terms
2. At **Comprehension** Level of Learning, a student can work assigned problems and can give examples of what they did
3. At **Application** Level of Learning, a student recognizes what methods to use and then uses the methods to solve the faced problems
4. At **Analysis** Level of Learning, a student can explain why the solution process works
5. At **Synthesis** Level of Learning, a student can combine the part of a process in new and useful ways
6. At **Evaluation** Level of Learning, a student can create a variety of ways to solve the problem and then, based on established criteria, select the solution method best suited for the problem.

KNOWLEDGE (INFORMATION)

1. How do **I know** I have reached this level?

   I can recall information about the *subject*, *topic*, *competency*, or *competency area*; I can *recall* the appropriate material at the appropriate time. I have been *exposed* to and have *received* the information about the subject; thus, I can respond to questions, perform relevant tasks, etc.

2. What do **I do** at this level?

   I read material, listen to lectures, watch videos, take notes; I pass 'True/False', 'Yes/No', 'multiple choice', or 'fill in the blank' tests which demonstrate my *general knowledge* of the *subject*. I learn the vocabulary or terminology as well as the conventions or rules associated with the *subject*.

3. How will the **teacher know** I am at this level?

   The teacher will provide *verbal* or *written* tests on the *subject* that can be answered by simply *recalling* the material I have learned about this subject.

4. What does the **teacher do** at this level?

   The teacher directs, tells, shows, identifies, and examines the subject or competency area *at this level*.

5. What are typical ways **I** can demonstrate my knowledge?
   a. Answer 'True/False', 'Yes/No', 'fill in the blank', or 'multiple choice' questions correctly.
   b. Define technical terms associated with the subject by stating their attributes, properties, or relations.
   c. Recall the major facts about the subject.
   d. Name the classes, sets, divisions, or arrangements that are fundamental to the subject.
   e. List the criteria used to evaluate facts, data, principles, or ideas associated with the subject.
   f. List the relevant principles and generalizations associated with the subject.
   g. List the characteristic methods of approaching and presenting ideas associated with the subject (e.g., list the conventions or rules associated with the subject).

h. Describe the general problem solving method (i.e., the techniques and procedures) or the method(s) of inquiry commonly used in the subject area.

6. What are typical ***work products***?
   a. Answers to Knowledge level quizzes ('True/False', 'Yes/No', 'fill in the blank', or 'multiple choice').
   b. Lists of definitions or relevant principles and generalizations associated with the subject.
   c. Modifications of example problems presented in the textbook; for example, modest changes in numerical values or units; i.e., solutions to problems which were solved using 'pattern recognition'.
7. What are descriptive **'process' verbs**?

define	label	listen	list	memorize	Name
read	recall	record	relate	repeat	View

COMPREHENSION (UNDERSTANDING)

1. How do **I know** I have reached this level?

   I comprehend or understand the *subject*, *topic*, *competency*, or *competency area;* I use ideas associated with the subject without relating them to other ideas or subjects. I may not yet completely understand the subject. When others are discussing this subject, I can follow and understand the discussion. This level requires **Knowledge**.

2. What do **I do** at this level?

   I successfully solve textbook problems using appropriate techniques and procedures based on (**1**) where the problem is located in the book or (**2**) the problem statement. I translate ideas into my own words (translation from one level of abstraction to another). I translate graphical or symbolic information (e.g., tables, diagrams, graphs, mathematical formulas, etc.) into verbal forms, and vice versa. I interpret or summarize communications (oral/written/graphical). I can use the problem solution to determine effects, trends, implications, corollaries, etc.

3. How will the **teacher know** I am at this level?

   The teacher will ask questions that can be answered by restating or reorganizing material in a literal manner; i.e., by clearly stating facts or the principle meaning of the material in your own words. The teacher will also give tests based on the textbook

problems that were (**1**) assigned as homework **or** (**2**) used as examples in the textbook or in class.

4. What does the **teacher do** at this level?

   The teacher demonstrates, solves problems, listens, questions, compares, contrasts, and examines the information and your knowledge of the subject.

5. What are typical ways **I** can demonstrate, on my own, my comprehension and understanding?
   a. Read textbook problems, understand what is required, and successfully solve the problems.
   b. Clearly document the process used to solve the problem.
   c. Clearly describe the solution to the problem.
   d. Draw conclusions based on the solution to the problem.
   e. Compare/contrast two different textbook problems (i.e., what elements are the same? what elements are different?).
   f. Restate an idea, theory, or principle in your own words.
6. What are typical **work products**?
   a. Answers to Comprehension level quizzes and exams (‘multiple choice’ or textbook problems).
   b. Solutions to textbook problems which include (a) a summary of the learning objectives associated with the problem, (b) the problem statement in the form of a clearly labeled sketch, specifications, and what is required, (c) a description of the general solution method (techniques and procedures) used to solve the problem, and (d) a discussion of the solution.
7. What are descriptive **‘process’ verbs**?

describe	discuss	explain	express	identify	locate
recognize	report	restate	review	solve	tell

APPLICATION (INDEPENDENT PROBLEM SOLVING)

1. How do I know I have reached this level?

   I can recognize the need to use an idea, concept, principle, theory, or general solution methods (techniques and procedures) **without being told** and **without any specific or immediate context or cues.** For example, I do not need to locate a similar example in a textbook, nor do I need to know that an assignment is for a particular course in order to recognize the need to use a particular idea, etc. I know and comprehend these ideas,

concepts, principles, theories, or general solution methods (techniques and procedures and I can apply them to new situations. I also have the ability to recognize when a certain task or project is beyond my current competency. This level requires **Knowledge** and **Comprehension**.

2. What do I do at this level?

   I apply ideas, concepts, principles, theories, or general solution methods (techniques and procedures) that I learned at the Knowledge and Comprehension level to new situations. I solve problems in which the solution method is not immediately evident or obvious. I solve these problems independently and make use of other techniques and procedures as well. This requires not only knowing and comprehending these ideas, concepts, principles, theories, and general solution methods (techniques and procedures) but deep thinking about their usefulness and how they can be used to solve new problems that I identify or define.

3. How will the teacher know I am at this level?

   The teacher will review my work products and confirm that I am solving problems independently, in new situations, and without prompting by the teacher. The teacher will be able to pose general questions such as *"How much protection from the sun is enough?"* and I will know how to answer the question by defining and solving a problem.

4. What does the **teacher do** at this level?

   The teacher assigns problems that do not explicitly (or as best possible implicitly) imply the use of an expected solution methodology. The teacher may develop problems and assignments in conjunction with teachers in another related subject areas. The teacher will probe for use of course material outside of the course.

5. What are the typical ways **I** can demonstrate, on my own, my Application of Knowledge and Comprehension?
   a. Solve problems which require that I recognize and apply the appropriate ideas, concepts, principles, theories, general solution methods (techniques and procedures), etc. without being told and without any specific or immediate context or cues.
   b. Apply the laws of mathematics, chemistry, and physics, as well as engineering, business or design concepts, etc. to practical problems or situations.
   c. Solve problems associated with design/build projects.
6. What are typical ***work products***?

Application level work products are very similar to Comprehension level work products; however, documentation will be included which demonstrates that you recognized the need to use ideas, concepts, principles, theories, general solution methods (techniques and procedures), etc. in a new situation.

7. What are descriptive **'process' verbs**?

apply	demonstrate	employ	illustrate	interpret
operate	practice	recognize	solve	use

ANALYSIS (LOGICAL ORDER, COMPONENTS)

1. How do I know I have reached this level?

   I can explain why. I can methodically examine ideas, concepts, principles, theories, general solution methods (techniques and procedures), reports, etc. and separate these into their component parts or basic elements. I can use the results of this examination to clarify the organization of the whole or to gain a global view. This level requires Knowledge and Comprehension Levels of Learning; Application is not required.

2. What do I do at this level?

   I demonstrate that I can analyze results by breaking ideas, concepts, principles, theories, general solution methods (techniques and procedures), reports, etc. into their component parts. I explain the logical interconnections of the parts. I can also develop detailed cause and effect sequences.

3. How will the teacher know I am at this level?

   When asked, I am able to explain why I did what I did. I include a discussion with my work that explains why my solution method worked.

4. What does the teacher do at this level?

   The teacher probes, guides, observe, and acts as a resource or facilitator.

5. What are typical questions I can ask myself that will demonstrate my Analysis Level of Learning?
   a. What are the causal relationships between the parts and how the whole functions?

b. Can I explain, from the parts, why the whole does or does not work?
c. Are the conclusions supported by sound reasoning?
d. Does the evidence provided support the hypothesis or the conclusion?
e. Are the conclusions supported by facts, opinions, or an analysis of the results?
f. What are the unstated assumptions, if any?

6. What are typical work products?
   a. Answers to Analysis level exams (problems, multiple choice, and essays).
   b. Analysis level work products are very similar to Comprehension level work products; however, documentation will include a more extensive discussion of the work. The content, amount, and depth of the presentation is what distinguishes Analysis level work products from Comprehension level work products; e.g., see items a. through f. above.
7. What are descriptive 'process' verbs?

analyze	appraise	break apart	break down	calculate
compare	contrast	debate	diagram	differentiate
examine	experiment	explain	inspect	inventory
question	relate	solve		

SYNTHESIS (CREATE)

1. How do I know I have reached this level?

   I have the ability to assemble parts and elements into a unified organization or whole that requires original or creative thinking. I recognize new problems and develop new tools to solve them. I create my own plans, models, hypotheses, etc. for constructing solutions to problems. This Level of Learning requires Knowledge, Comprehension, Application and Analysis Levels of Learning.

2. What do I do at this level?

   I generate ideas and use them to create a physical object, a process, a design method, a written or oral communication, or even a set of abstract relations (e.g., mathematical models). I produce written or oral reports that have the desired effect (e.g., information acquisition, acceptance of a point of view, continued support, etc.) on the reader or listener. I generate project plans. I propose designs. I formulate hypotheses based on the analysis of relevant or pertinent factors. I am able to generalize from a set of axioms or principles.

3. How will the teacher know I am at this level?

   I demonstrate that I can combine ideas into a statement, a plan, a product, etc. that was previously unknown to me; e.g., I develop a program that includes the best parts of each of these ideas.

4. What does the teacher do as this level?

   The teacher reflects, extends, analyzes, and evaluates.

5. What are the typical questions I can ask myself that will demonstrate my Synthesis Level of Learning?
   a. Can I create a project plan?
   b. Can I develop a model?
   c. Can I propose a design?
6. What are typical work products?
   a. Answers to Synthesis level exams (problems, multiple choice, and essays).
   b. Synthesis level work products are very similar to Comprehension level work products; however, documentation will include a more extensive discussion of the work. The content, amount, and depth of the presentation is what distinguishes Synthesis level work products from Comprehension level work products; e.g., see items a. through c. above.
7. What are descriptive 'process' verbs?

Arrange	assemble	collect	compose	construct
create	design	formulate	manage	organize
plan	prepare	propose	set up	write

EVALUATION (APPRECIATION)

1. How do I know I have reached this level?

   I have the ability to judge and appreciate the value of ideas, concepts, principles, theories, or general solution methods (techniques and procedures) using appropriate criteria. This level requires Knowledge, Comprehension, Application, Analysis, and Synthesis Levels of Learning.

2. What do I do at this level?

I make value judgments based on certain criteria such as usefulness and effectiveness. Based on information gained through application, analysis, and synthesis, I can rationally select a process, a method, a model, a design, etc. from among a set of possible processes, methods, models, designs, etc. I evaluate competing plans of action before actually starting the work. I evaluate work products based on internal standards of consistency, logical accuracy, and the absence of internal flaws; e.g., I can certify that the feasibility of a design has been demonstrated in a report. I evaluate work products based on external standards of efficiency, cost, or utility to meet particular goals or objectives; e.g., I can certify that the quality of the design has been demonstrated in a report.

3. How will the teacher know I am at this level?

   I demonstrate that I can select, judge, or appreciate a process, a method, a model, a design, etc. using appropriate criteria or standards.

4. What does the teacher do at this level?

   The teacher clarifies, accepts, harmonizes, aligns, and guides.

5. What are typical statements and questions I can answer to that will demonstrate or show my appreciation/evaluation?
   a. I can evaluate an idea in terms of ...
   b. For what reasons do I favor...?
   c. Which policy do I think would result in the greatest good for the greatest number?
   d. Which of these models or modeling approaches is best for my current needs?
   e. How does this report demonstrate that the design is feasible?
   f. How does this report demonstrate the quality of the design?
6. What are typical work products?
   a. Answers to Evaluation level exams (problems, multiple choice, and essays).
   b. Evaluation level work products are very similar to Comprehension level work products; however, documentation will include a more extensive discussion of the work. The content, amount, and depth of the presentation is what distinguishes Evaluation level work products from Comprehension level work products; e.g., see items a through f above.
7. What are descriptive ‘process’ verbs?

appraise	assess	choose	compare	estimate (quality)
evaluate	judge	predict (quality)	rate value	Select

Practices to Achieve Desired Outcomes

The primary means by which students achieve the desired outcomes is through the curriculum, in which specific technical skills are learned in classes and laboratories, and then applied through other courses and projects.

- Several Tables will be constructed to show all engineering courses required for the degree in Mathematics and their contributions toward achieving the Program Outcomes. While some outcomes achieved in a course are assessed in the course (through graded assignments, for example), others simply provide students in the course with an exposure.
- The contribution of the required non-engineering courses to achieving the Program Outcomes will also be demonstrated.
- It should be noted that students are continuously provided the opportunity throughout their academic career to demonstrate achievement of the Program Outcomes. Repetitive achievement of specific outcomes throughout a student's academic career demonstrates that students are reaching a higher level of achievement for the outcome.

Assessment Methods

Assessment methods are methods of gathering evidence to demonstrate that those outcomes important to the missions and objectives are being measured, i.e., outcomes indicators. The following items outline the methods used to collect evidence of desired outcomes as suggested by NCAAA as well as those selected by this department.

Some program outcomes can be measured using "devices" administered by the department, while others depend on external assessment. In addition, some program outcomes can be assessed using direct measures while others will probably have to be inferred by observing student behavior or by indirect measures such as student self-reporting.

The assessment methods listed below were selected by this department. A description of each method's process is outlined on the following pages.

i. Senior projects
ii. Portfolios or specific course assignments

iii. Alumni surveys
iv. Employer/recruiter surveys
v. Placement data
vi. Student exit interviews
vii. Course evaluations
viii. Participation in professional society
ix. Summer training

Instructor's guide to Course Assessment Report and Plan for Improvement

Course Assessment Plan:
Each individual instructor must prepare a course assessment plan at the beginning of the semester in which the course is being offered. The plan must clearly define how the instructor will assess whether this particular offering has achieved the outcomes on the syllabus.

The assessment procedures must clearly define how each of the syllabus outcomes will be directly monitored. Direct monitoring of the achievement of outcomes is preferred. Direct methods involve graded work, such as homework, exams, lab exercises, lab reports, and projects. Student surveys are indirect assessment tools and carry less weight in proving that outcomes have been achieved. However, surveys are useful in gauging how the course was organized from the standpoint of our students, and can lead to suggestions for future improvements or refocus.

The instructor is free to define whatever assessment and improvement procedures he deems appropriate, but they must rely mostly on direct measures, and they must cover all of the course outcomes. Once written, however, the instructor has obligated himself to follow that plan in preparing the final course assessment.

Course Assessment Report and Plan for Improvement

Each individual instructor must prepare a course assessment and a plan for improvement at the end of the semester. This is a report that uses the outcome monitoring methods defined in the assessment plan to determine how well the course outcomes have been achieved. If deficiencies have been noted, then it also includes a plan for improving the course in the future in order to remedy these deficiencies.

The assessment and the plan for improvement are to be written by the instructor. It is necessary to develop some sort of semi-quantitative rating of how well each outcome has been achieved. It is also necessary to document which direct and indirect evidence has been used by the instructor in order to assess each outcome. It is not appropriate to include "raw data" in this section. Examples of inappropriate raw data include grade statistics for homework assignments, for exams, or for the students' cumulative course averages. Such

data do not constitute an assessment even if a mapping has been made between particular graded work and course outcomes. It is the instructor's duty to interpret such raw data and to come to an overall assessment of how well each outcome has been achieved.

The instructor may want to include an additional improvement plan that is not in response to a failure to achieve outcomes. Such improvements will normally be motivated by the instructor's own vision of how the course can be made more relevant or more up-to-date.

Portfolio or Specific Course Assignments

Course portfolios are to be compiled for each course taught in the ME program in the '1426-1427 H' ('2005- 2006') academic year. Each portfolio contains representative (**good, satisfactory, poor or the equivalent superior, acceptable, unacceptable**) samples of homework, quizzes, tests, laboratory assignments and reports, as applicable for each course. In addition, some project hardware (prototypes) may also be available. Choose to use permission slips or white out student names.

While the portfolios are not used for assessment purposes, they will be available for inspection by the NCAAA evaluator. In certain instances, specific assignments (e.g. design projects, senior projects and reports) are used for assessment purposes.

Coordinator's Responsibilities: The professor for each course is responsible for collecting and compiling the sample coursework.

Please prepare Course Binder according to the following.

NCAAA Course Binders
General Information

1. NCAAA Syllabus
[2-3 page document in NCAAA format].

2. Outcomes
[Include level of coverage (L/M/H) and location of relevant material in course binder - Course Classification Form (with Examples).]

3. Course Information
[Instructor syllabus, grading policy, and any other similar material]

4. Class Handouts
Handouts not related directly to student assignments/work, i.e., information provided to supplement the text, but not an assignment that would be covered under a later heading. Could also include instructors lecture notes if they weren't too voluminous - or, these could go under heading number 10 if the instructor so desired.

5. Homework
HW assignments, etc; and examples of student work.

6. Written Reports and Other Student Assignments
Report assignments, etc; and examples of student work.

7. Lab Assignments
Lab assignments, etc; and examples of student work.

8. Exams
Include quizzes, tests, mid-terms, final exams, etc., and examples of student work.

9. Student Roster
Grade roster (list) with names blanked out unless permission slips are used.

10. Other

An annex-like location for anything the instructor wants to include other than what goes under the previous headings?

PHYSICS DEARTMENT
MISSION, Goals, OBJECTIVES, AND OUTCOMES

Aims of the program of studies

According to the High Education Ministry and serve of a wide area including Majmaah, Vision and Mission of Majmaah University are established. The vision and mission of the Majmaah University are described as:

Majmaah University Vision

To ensure that Majmaah University is a conducive academic environment of high quality capable of providing graduates with promising future to contribute in achieving the sustainable development objectives.

Majmaah University Mission

Majmaah University provides educational and research services via an academic system that is capable of competing with an eye on the market demands and the society partnership.

Physics program mission reflect the mission of Zulfi College of Science which both mission are reflecting the mission of Majmaah University. The mission of the College and the program are:

College of Science AlZulfi Mission:

College of Science – Alzulfi provides graduates who have scientific excellence through affective plans and developed programs with the skills needed to compete in the labor market.

Physics program Mission:

Program of Physics is promoting an excellence in Physics education through building knowledge, creating skills, conducting research and collaborating with society.

The degree program in Physics offers the student's possibilities to acquire competences required in positions where Physical expertise is expected, within different operation sectors

of the society. The objective of program is that the students will demonstrate adequate knowledge of various Physics branches.
The B.Sc. degree program in Physics provides the students with skills to consider the application possibilities of all Physics branches within various application sectors.
Central professional Goals include the following:

G1:	Graduates should have the standing for further education, teaching, and research in physics.	
	1.1	Foundations and contemporary knowledge in Physics
	1.2	Skills of handling problems on the basis of physics principles
G2:	Skilled graduates that have the capability to conduct studies and research individually as well as in group for the solution of physics based problems.	
	2.1	Foundation for basic scientific research in Physics.
	2.2	Ability to cooperate as individuals or in groups with the society to solve Physics related problems.

The program objectives are discussed in the committee of the department and the student. These objectives are consistent with the program learning outcomes. The program learning outcomes are consistent also with ASIIN learning outcomes.

Learning outcomes of the program

Learning outcomes for B.Sc. Program in Physics are defined and published in the study guide and it is available on the Majmaah university website www.mu.edu.sa.

Professors of the B.Sc. Program in Physics and course teachers have participated in the definition of the learning outcomes. The requirements of the labor market are transmitted into the definition the learning outcomes of the degree program through research projects. Also the requirements of the post-graduate studies have been taken into account in the definition of the learning outcomes.

The Students learning outcomes of the B.Sc. Program in Physics are defined as follows. After the completion of the Bachelor's Degree Program in Physics the student have:

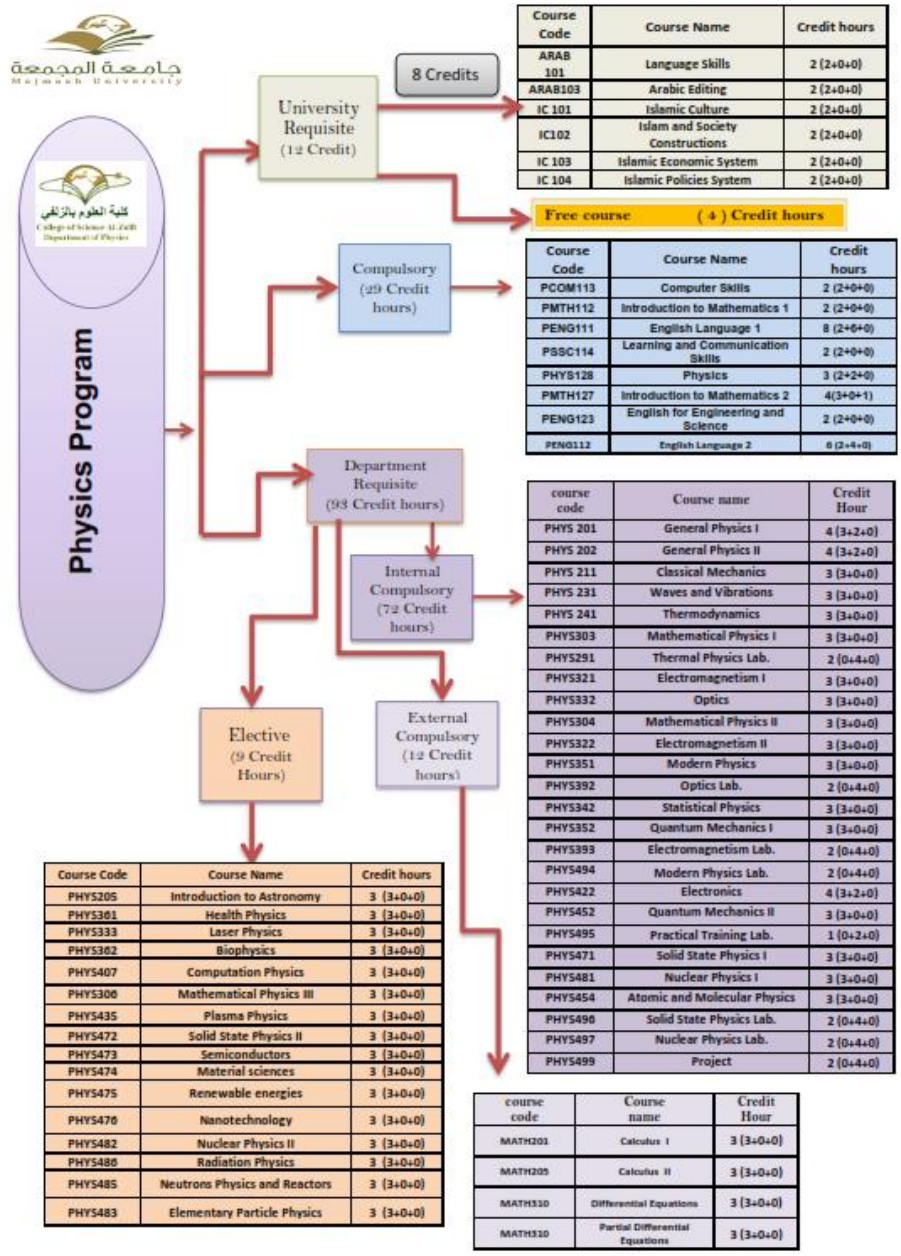
The program learning outcomes according to the NCAAA domains.

Program Learning Outcomes		
	The Student will be able to:	
Knowledge	[a1]	Recognize the knowledge of fundamental concepts in classical physics (mechanics, electrodynamics, thermo-dynamics, vibrations, waves and optics) and modern physics (quantum, atomic and molecular, nuclear, elementary particle and solid state physics)
	[a2]	Recall the appropriate mathematical tools used in physics
	[a3]	Understand the importance of physics laws and its limitations, their inherent relation and mathematical formulation
Cognitive Skills	[b1]	Perform experiments, data acquisition, data analysis and draw results and conclusions.
	[b2]	Develop the skill for analyzing/solving the physics based problems.
	[b3]	Explain to general audience the physical principles that underlie our understanding of nature.
Interpersonal Skills & Responsibility	[c1]	Communicate and work effectively in groups as well as individually
	[c2]	Be aware of professional and ethical responsibilities
Communication, Information Technology, Numerical	[d1]	Think creatively about scientific problems and their solutions, both orally and in written.
	[d2]	Locate and retrieve scientific information, using modern computer tools
	[d3]	Learn how to collect and classify the required topics using internet communication tools.

All students in the Bachelor's Degree Program in Physics have the same major subject, Physics.

Physics Program Flowcharts

New Curriculum



Course Code	Course Name	Credit hours
ARAB 101	Language Skills	2 (2+0+0)
ARAB103	Arabic Editing	2 (2+0+0)
IC 101	Islamic Culture	2 (2+0+0)
IC102	Islam and Society Constructions	2 (2+0+0)
IC 103	Islamic Economic System	2 (2+0+0)
IC 104	Islamic Policies System	2 (2+0+0)

Free course (4) Credit hours

Course Code	Course Name	Credit hours
PCOM113	Computer Skills	2 (2+0+0)
PMTH112	Introduction to Mathematics 1	2 (2+0+0)
PENG111	English Language 1	8 (2+6+0)
PSSC114	Learning and Communication Skills	2 (2+0+0)
PHYS128	Physics	3 (2+2+0)
PMTH127	Introduction to Mathematics 2	4(3+0+1)
PENG123	English for Engineering and Science	2 (2+0+0)
PENG112	English Language 2	6 (2+4+0)

course code	Course name	Credit Hour
PHYS 201	General Physics I	4 (3+2+0)
PHYS 202	General Physics II	4 (3+2+0)
PHYS 211	Classical Mechanics	3 (3+0+0)
PHYS 231	Waves and Vibrations	3 (3+0+0)
PHYS 241	Thermodynamics	3 (3+0+0)
PHYS303	Mathematical Physics I	3 (3+0+0)
PHYS291	Thermal Physics Lab.	2 (0+4+0)
PHYS321	Electromagnetism I	3 (3+0+0)
PHYS332	Optics	3 (3+0+0)
PHYS304	Mathematical Physics II	3 (3+0+0)
PHYS322	Electromagnetism II	3 (3+0+0)
PHYS351	Modern Physics	3 (3+0+0)
PHYS392	Optics Lab.	2 (0+4+0)
PHYS342	Statistical Physics	3 (3+0+0)
PHYS352	Quantum Mechanics I	3 (3+0+0)
PHYS393	Electromagnetism Lab.	2 (0+4+0)
PHYS494	Modern Physics Lab.	2 (0+4+0)
PHYS422	Electronics	4 (3+2+0)
PHYS452	Quantum Mechanics II	3 (3+0+0)
PHYS495	Practical Training Lab.	1 (0+2+0)
PHYS471	Solid State Physics I	3 (3+0+0)
PHYS481	Nuclear Physics I	3 (3+0+0)
PHYS454	Atomic and Molecular Physics	3 (3+0+0)
PHYS490	Solid State Physics Lab.	2 (0+4+0)
PHYS497	Nuclear Physics Lab.	2 (0+4+0)
PHYS499	Project	2 (0+4+0)

Course Code	Course Name	Credit hours
PHYS205	Introduction to Astronomy	3 (3+0+0)
PHYS361	Health Physics	3 (3+0+0)
PHYS333	Laser Physics	3 (3+0+0)
PHYS362	Biophysics	3 (3+0+0)
PHYS407	Computation Physics	3 (3+0+0)
PHYS306	Mathematical Physics III	3 (3+0+0)
PHYS435	Plasma Physics	3 (3+0+0)
PHYS472	Solid State Physics II	3 (3+0+0)
PHYS473	Semiconductors	3 (3+0+0)
PHYS474	Material sciences	3 (3+0+0)
PHYS475	Renewable energies	3 (3+0+0)
PHYS476	Nanotechnology	3 (3+0+0)
PHYS482	Nuclear Physics II	3 (3+0+0)
PHYS486	Radiation Physics	3 (3+0+0)
PHYS485	Neutrons Physics and Reactors	3 (3+0+0)
PHYS483	Elementary Particle Physics	3 (3+0+0)

course code	Course name	Credit Hour
MATH201	Calculus I	3 (3+0+0)
MATH205	Calculus II	3 (3+0+0)
MATH310	Differential Equations	3 (3+0+0)
MATH330	Partial Differential Equations	3 (3+0+0)

Old Curriculum

Majmaah University

College of Science

Physics Program

University Requisite

Compulsory (8 Credit hours)

Course Name	Code	Credit hours
Linguistic Skills	(ARAB 101)	2
Introduction to Islamic Culture	(SALM 101)	2
Islam and building society	(SALM 102)	2
Economical system in Islam	(SALM 103)	2

Elective (4 Credit Hours

Course Name	Code	Credit hours
Linguistic Skills	(ARAB 101)	2
Introduction to Islamic Culture	(SALM 101)	2
Islam and building society	(SALM 102)	2
Economical system in Islam	(SALM 103)	2

College Requisite

Compulsory (29 Credit hours)

Course Name	Code	Credit hours
Linguistic Skills	(ARAB 101)	2
Introduction to Islamic Culture	(SALM 101)	2
Islam and building society	(SALM 102)	2
Economical system in Islam	(SALM 103)	2

Free Courses (3 Credit hours)

Course Name	Code	Credit hours
Linguistic Skills	(ARAB 101)	2
Introduction to Islamic Culture	(SALM 101)	2
Islam and building society	(SALM 102)	2
Economical system in Islam	(SALM 103)	2

Department Requisite

Compulsory (83 Credit hours)

Course Name	Code	Credit hours
Calculus 1	MATH 201	3
General Physics 1	PHYS 201	3
General Physics 2	PHYS 202	3
Calculus 2	MATH 202	3
Classical Mechanics	PHYS 211	3
Waves and Vibrations	PHYS 231	3
Thermodynamics	PHYS 241	3
Thermal Physics Lab.	PHYS 291	3
Mathematical Physics 1	PHYS 301	3
Differential Equations	MATH 310	3
Electromagnetism 1	PHYS 321	3
Optics	PHYS 332	3
Modern Physics	PHYS 351	3
Partial Differential Equations	MATH 324	3
Mathematical Physics 2	PHYS 302	3
Optics Lab.	PHYS 393	3
Statistical Physics	PHYS 342	3
Electromagnetism Lab.	PHYS 392	3
Quantum Mechanics 1	PHYS 352	3
Electromagnetism 2	PHYS 322	3
Electronics	PHYS 422	3
Quantum Mechanics 2	PHYS 452	3
Modern Physics Lab.	PHYS 495	3
Nuclear Physics 1	PHYS 481	3
Solid state physics 1	PHYS 471	3
Atomic and molecular physics	PHYS 455	3
Solid state physics lab.	PHYS 497	3
Nuclear Physics lab.	PHYS 498	3
Project	PHYS 499	3

Elective Courses (9 Credit Hours)

Course Name	Code	Credit hours
Introduction to astronomy	PHYS 213	3
Health Physics	PHYS 334	3
Laser Physics	PHYS 333	3
Biophysics	PHYS 361	3
Computational physics	PHYS 405	3
Plasma Physics	PHYS 435	3
Medical Physics	PHYS 462	3
Solid state physics 2	PHYS 472	3
Mathematical physics 3	PHYS 403	3
Semiconductors	PHYS 473	3
Materials Science	PHYS 474	3
Renewable energy	PHYS 476	3
Nuclear physics 2	PHYS 482	3
Radiation Physics	PHYS 485	3
Neutron Physics and Reactors	PHYS 487	3
Elementary particle physics	PHYS 484	3
Nanotechnology	PHYS 476	3
Practical training	PHYS 496	3

Physics Course Objectives and Outcomes

Due September 3, 2010

Course Number: _____Course Name: _ _____

Prepared by: ___ _____

Table 1 – Please fill in this table based on the following criteria:

1. Based on your course syllabus, provide 3 - 5 *major course objectives* in column 1 along with 2 - 3 *outcome for each objective* in column 2.
2. In column 3, indicate how the objectives and outcomes in column 1 and 2 map into Physics Program Learning Outcomes (PLO).
3. In column 4, indicate how the objectives and outcomes in columns 1 and 2 *map* into the NCAAA domains (a) through (e) criteria (see page 28 for criteria).

Course Objectives:	**Course Outcomes:**	**PLO**	NCAAA domains (a) to (e)
1.	1.		
	2.		
	3.		
2.	1.		
	2.		
	3.		
3.	1.		
	2.		
	3.		
4.	1.		
	2.		
	3.		

Table 2: Based on your course syllabus, indicate how your course is *assessed*. If an item is given but not assessed, simply leave the last 2 columns blank.

Assessment Method	Number/Type				First Instructor Assessed	Second Instructor Assessed
Homework						
Mid Terms/Final Exams						
Quizzes						
Individual Projects	1-2 wks	3-4 wks	1/2 sem	Full sem		
Team Projects	1-2 wks	3-4 wks	1/2 sem	Full sem		
Lab Assignments						
Computer Assignments						
Computer Tools Used	(e.g., C, FORTRAN, Matlab)					
Oral Presentations						
Written Reports						
Other						

NCAAA Criteria - Outcomes and Assessment: Physics programs must demonstrate that:

a. Knowledge

Graduate have ability to recall, understand, and present information, including:

a1. Knowledge of facts

a2. Knowledge of concepts, principles and theories, and

a3. Knowledge of procedures

b. Cognitive Skills

Cognitive skill learning outcomes include the ability to:

b1. Apply conceptual understanding of concepts, principles, theories and

b2. Apply procedures involved in critical thinking and creative problem solving, both when required to do so, and when faced with unanticipated new situations

b3. Investigate issues and problems in a field of study using a range of sources and draw valid conclusions

c.Interpersonal Skills and Responsibility

Interpersonal skills and responsibility learning outcomes include both the ability and the predisposition to:

c1. Take responsibility for their own learning and continuing personal and professional development

c2. Work effectively in groups and exercise leadership when appropriate

c3. Act responsibly in personal and professional relationships

c4. Act ethically and consistently with high moral standards in personal and public forums

d.Communication, Information Technology, and Numerical Skills

Communication, information technology, and numerical skills outcomes include the ability to:

d1.Communicate effectively in oral and written form

d2.Use information and communications technology, and

d3.Use modern mathematical and statistical techniques

e. Psychomotor

a. *Psychomotor skills include manual dexterity and the capacity to manage physical behavior with precision and skill. They include skilled use of equipment and other physical activity (that may be managed consciously or unconsciously), voice production and non-verbal communications.*

b. *Descriptions of the level of psychomotor skills expected of a bachelor's degree graduate will vary widely for different fields of study according to the nature of the skills to be developed in different academic areas or professional fields*

Course: **Developed by:**

Course Competency	Mastery Level	Core Competency (Y/N)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		

Course: **Developed by:**

Course Prerequisite Competency	Mastery Level
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	

Department of Physics

Summary of NCAAA course information for B.Sc. Physics degree

Course Name and Code								
Level/semester								
Credit hours (3, 0 , 0) 3								
Language:								
Content of the Course :								
Learning outcomes/ Goals / Skills of the Course:								
Teaching Strategies:								
Assessment:	H.W	presentation		quiz		M-term1	M-term2	Final	total
Reference Book								

Prepared by **Date of Preparation**

Course Assessment by Physics Department

Course: _____ Semester_____ Instructor _____

The Department Accreditation Committee (DQU) uses the following report in its efforts to continuously improve the ME Programs. The report should be completed and submitted before the end of Finals.

1. Are the prerequisites for this course adequate (if not what changes do you recommend)?

2. Are the students entering with the expected mastery of these prerequisites (if not what fraction fall short of expectations)?

3. Discuss the ease/difficulty that the students had in demonstrating mastery of the core course competencies

4. What, if any, recommendations do you have for improvement relative to: course outcomes, **core** competencies, and/or Program Objectives and Outcomes.

5. Do you have any other comments that might help the DQU improve the Program?

Student Sign Off Form for Physics Course

Course: _____ Semester___ Instructor _____

Physics Department Grading Guidelines

Physics courses are assessed using the following condition:
A grade of C or better can only be given to a student who demonstrates mastery of **all** the course core competencies.

Acknowledgment of Reading

You were given a number of documents during your first class to read. Please read the following statements, sign, make a copy for your records (optional), and return this signed copy to your instructor within the first week of class. If you feel you cannot sign this document please discuss the reasons with your course instructor.

1. I received and read a copy of the Physics Program Objectives and Outcomes
2. I received and read a copy of the Course Objectives, Outcomes, and Competencies
3. I have noted the **Core** Competencies contained within the Course Competencies
4. I have read the grading guidelines above and know that I can only receive a grade of C or better if I demonstrate mastery of **all** the **Core** Competencies.

Student Name	Academic number	Signature