Course specification

University/Academy: **Damanhour**

Faculty/Institute: Science

Department: Physics

1. course Data:		
Course code: PHY (403)	Course title: Elementary particles	Academic year/level: 2010-2011 4th year (first term)
Specialization: Mathematics and physics	No. of instructional units: lecture 2hrs/ week tutorial - practical 3hrs/ week	

2. course Aim	• The course introduces the principles of the Elementary particles and its theory.
3. Intended learning outcome	
a) Knowledge and understanding	**A1**: Define the conservation laws. **A2**: Recognize the negative and positive electron. A3: Define the interaction of mu and pi- mesons with matter.
b) Intellectual skills	B1: Show the difference between different types of mesons. B2: Create theoretical dealing of the topic under investigation.
c) Professional skills	C1: Examine the physical knowledge to analyze a

	suitable technique to solve problems. C2: Examine some physical problems helping in understanding the course parts.
d) General skills	D1: Use technology tools like the internet/electronic resources to obtain subject specific information,. - use a number of computer packages to present information. D2: The ability to work in groups: work with other as a part of a team to collect data and/or to produce reports and presentations. D3: The ability o communicate to improve self-learning: - study independently, set realistic targets and plan work and time to met targets within deadlines. D4: Write reports Problem solving: - Regular problem exercises and example will give students the chance to develop their theoretical understanding and problem. D5: The ability to communicate: Students will have write reports and give oral presentation.
4. course content	- conservation laws- isotopic spin- intrinsic party - Protons and neutrons- antineutrons. - Photons- negative and positive electrons - Mu, pi, neutral k- meson- mass and mean life time, - Interaction with matter and production. - Hyperons, lambda, sigma, xi and omega hyperons.k1 and k2 meson - Hyperfragments- Antinucleons and antiparticles.pri - quark and quark theory. - Quark charge and masses - Gluons and bosons- charm- beauty- trath - Practical physics.

5. Teaching and learning methods	5.1. Teaching will be by lectures, exercises . 5.2. All learning outcomes are delivered through lectures. 5.3.All lectures and worked examples are given from the lecturer private notes. Instructional Methods include: • Direct Instruction: lecture, reading, in class research, problem sets, presentations, and guest speakers • Instructional Materials: textbook; primary and secondary materials, experts from the field, and electronic media • Team Teaching which will include business, university, and community based partners • Community based applied concept projects • Self-directed, cooperative, and collaborative learning projects • Student oral presentations
6. teaching and learning methods for students with special needs	1- Over head projector 2- appropriate teaching accommodation and Computers 3- Laboratory with computer terminal.
7. Student Assessment	**7-1.** Semester Work. **7-2.** Mid-Term Examination . 7-3. **Practical Examination** 7-4. **Final Term Examination**

a) Procedures used:	7.1. Reaserch and presentation to assess skills of presenting data and discussion. 7.2. Mid-Term Examination To accesses ability to **continue in course** 7.3. practical exam. To access professional and practical skills. 7.4. written exam. To accesses ability to remember &.understand scientific background. &.understand scientific background.
b) Schedule:	Assessment1:Semesterwork Week: 4-8 Assessment 2: Mid-term Week: 10 Assessment 3: Practical final Week: 12 Assessment 4: Written final Week: 14
c) Weighing of Assessment:	Mid-Term Examination: 10 Final-Term Examination: 100 Practical Examination: 30 Semester Work: 10 Total: 150
8. List of Textbooks and References:	----------
a) Course Notes	Lecturer private notes
b) Required Books (Textbooks)	1- Nuclear physics by I.kaplan (Adison Wesley). 2- Nuclear physics and Nuclear reactors by A.Klimov (Mir publishors).

	3- α, β and ray spectroscopey (Vol I) by K.Sigban (North Holand publishing
c) Recommended Books	----------
d) Periodicals, web sites,…,etc	----------

Course Instructor: Dr. Adly helmy
Dr. Yehya keshk

Head of Department

Date: -----/-----/----

Prof. Dr. El. M. Elmaghrby