Course Specifications

Programme(s) on which the course is given : P., P.&las., P.&comp., P.&G., P.&Ch.

Major or Minor element of programmes : major - major - minor - minor - minor.

Department offering the programme : P., P., P.&Math., P.&G., P.&Ch.

Department offering the course Physics

Academic year / Level 2

Date of specification approval: 2012

A- Basic Information

Title: Electronic optics Code: P233

Credit Hours: 3 h Lecture: 3h

Tutorial: 00 Practicals:00 Total: 3h

B- Professional Information

1 – Overall Aims of Course

by using the interaction between electrons and both electric and magnetic fields the student understand the electron optics

2 – Intended Learning Outcomes of Course (ILOs)

a Knowledge and Understanding:

After finishing the course the student should be able to

a1- understand the configuration of electron microscope(E.M.)

a2- explain different kinds of E.M.

a3- know about applications of E.M. (T.E.M & S.E.M.)

b Intellectual Skills

b1-the student should be able to differentiate between light and E.M.

c Professional and Practical Skills

c1- The student will be able to use the E.M.

d General and Transferable Skills

d1-the student will understand the physical

process of the interaction between electrons and electric and magnetic fields

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Geometrical electron optics	18	6	
Structure of S.E.M	12	4	
Structure of T.E.M	12	4	

4– Teaching and Learning Methods

4.1- lectures

4.2-project assignment

5- Student Assessment Methods

5.1 Disscutions ……. to assess student scientific thinking

5.2 Reaserch projects …. to assess the overall outcome

5.3 Written exam

Assessment Schedule

Assessment 1 oral exams every week
Assessment 2 written and reaserch projects Week final

Weighting of Assessments

Mid-Term Examination	**20 %**
Final-term Examination	**60 %**
Semester Work	**20 %**
Total	**100 %**

6- List of References

6.1- Course Notes

6.2- Essential Books (Text Books)

electon optics & electron microscopy P.Griet, P. Hwakes Introduction to E. microscopy S.Winschnitzer.

6.3- Recommended Books

6.4- Periodicals, Web Sites, … etc

7- Facilities Required for Teaching and Learning

Instrumentation, models, computers, sofwares and internet facility

Course Coordinator :.Dr .Yasser Rammaah
Head of Department: Prof.Dr. Sana Maize
Date: / /