324 PHYS COURSE SPECIFICATION

2014

Course Specification

Institution: King Khalid University
College/Department : Faculty of Science / Physics Department

A Course Identification and General Information

1. Course title and code: Electronics, Phys 324
2. Credit hours: 3
3. Program(s) in which the course is offered. **(If general elective available in many programs indicate this rather than list programs)** The Academic program at the Department of Physics
4. Name of faculty member responsible for the course Dr. Atif Mossad Ali
5. Level/year at which this course is offered: Level VI /Third year
6. Pre-requisites for this course (if any) : Electricity and Magnetism 1 (220 Phys)
7. Location if not on main campus: Department of Physics / Building C / Main Campus / Grigar / Abha.

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course is provided the basic information for B. Sc. students in order to understand the motion of electrons in the longitudinal and transverse fields and an oscilloscope. And also to study the semiconductors and their properties, types of bands and electronic devices (P-N junctions and transistors).

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1 Topics to be Covered

Topic	No of Weeks	Contact hours
1- Electrons motion in the field of longitudinal and transverse – oscilloscope.	2	6
2- Atom – combination of atoms - energy bands – intrinsic semiconductors – extrinsic semiconductors	3	9
3- P-N junction (composition – bias - analysis) – Zener diode – diode in a rectifier circuit	4	12
4- Transistor (installed - types – common base configuration – common emitter configuration - analysis circles) – transistor amplifiers - integrated circuits.	5	15

2 Course components (total contact hours per semester):

Lecture: 42	**Tutorial: _____**	**Practical/Fieldwork/Internship: No**	**Other: _____**

3. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week)

4 hours per week.

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- **A brief summary of the knowledge or skill the course is intended to develop;**
- **A description of the teaching strategies to be used in the course to develop that knowledge or skill;**
- **The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.**

a. Knowledge

(i) Description of the knowledge to be acquired

The student learns and knows the following subjects;
Eelectrons motion in the field of longitudinal and transverse, oscilloscope, atom, combination of atoms, energy bands, intrinsic semiconductors, extrinsic semiconductors, P-N junction (composition – biasing - analysis), Zener diode, diode in a rectifier circuit, transistor (installed - types – common base configuration – common emitter configuration - analysis circles), transistor amplifiers, and integrated circuits.

(ii) Teaching strategies to be used to develop that knowledge

Lectures and self learning

(iii) Methods of assessment of knowledge acquired

1- In class short MCQs quizzes.
2- Major and final examinations.
3- Evaluation of the problems solutions of each chapter.
4- Attendance.

b. Cognitive Skills

(i) Cognitive skills to be developed

1- Tutorials and solving problems related to course contents.

2- Identify the recent technological advances that have allowed careful and precise experiments and have stimulated new interest in the field.
3- Apply the information about the P-N junctions and transistors in our life practice.

(ii) Teaching strategies to be used to develop these cognitive skills

1- A number of homework is assigned to students.

2- Solving selected problems.

3- The studies related to the course topics and relevant national industries.

(iii) Methods of assessment of students cognitive skills

1- Encouraging the student to increase the lecture attendance.
2- A student follow-up is maintained using quick questions style.
3- Checking the solution of problems as well as the homework assignments.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1- Academic supervision is required.

2- Communicate results of the work to others.
3- Work independently and as a part of team.
4- Manage resources, time and other members of the group.

(ii) Methods of assessment of students interpersonal skills and capacity to carry responsibility

1- Assessment of the solution of problems.
2- Grading homework assignment.

d. Communication, Information Technology and Numerical Skills

None

e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required

None

(ii) Teaching strategies to be used to develop these skills

None

(iii) Methods of assessment of students psychomotor skills

None

5. Schedule of Assessment Tasks for Students During the Semester

Assess-ment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Mid term 1	After 7 weeks	22.5%
2	Mid term 2	After 14 weeks	22.5%
3	Home Works	At the end of every chapter	5%
4	Final examination	End of the term	% 50

D. Student Support

1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)

Office hours: 10 hours per week.

E Learning Resources

1. Essential References

Fundamentals of Electronic devices. Tocci
Digital Fundamentals. Floyd

2- Other learning material such as computer-based programs/CD, professional standards/regulations

E-Learning Black Board

F. Facilities Required

None

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching An academic evaluation is required continuously.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department 1- Evaluating the course outside the department. 2- Evaluating the course at the departmental levels.
3. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution) None