

KINGDOM OF SAUDI ARABIA

***THE NATIONAL COMMISSION FOR ACADEMIC
ACCREDITATION & ASSESSMENT***

***COURSE SPECIFICATION
HASEB 244***

Revised March 2007

Course Specification

*For Guidance on the completion of this template, please refer to of Handbook 2
Internal Quality Assurance Arrangements*

University: Almajmaah University
College: Al Majmaah Community College
Department: Computer Sciences

A Course Identification and General Information

1. Course title and code: Digital Logic and Computer Architecture HASEB 244
2. Credit hours: 3 hours
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer science (Career Program)
4. Name of faculty member responsible for the course Mr. Hitham Alhussein
5. Level/year at which this course is offered : 4th level/ 2ed year
6. Pre-requisites for this course (if any) HASR 110 (Principles of Computer and IT)
7. Co-requisites for this course (if any)
8. Location if not on main campus Main campus Room No: (A2..9)

B Objectives

<p>1. Summary of the main learning outcomes for students enrolled in the course.</p> <p>Students will add to their knowledge-base in the fundamentals of mathematics, especially in the area of Boolean algebra.</p> <ul style="list-style-type: none"> - Students will add to their knowledge-base the fundamentals of digital logic design. - Students will further develop their basic skills of problem solving and critical thinking by solving problems in digital logic design. - Students will further develop their laboratory experience by working on laboratory assignments in digital logic design.
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)</p>

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
Number Systems	Week1	6
Binary System	Week2	6
Boolean Algebra and Logic Gates	Week 3 &4	12
Simplification of Boolean functions	Week 5	6
Combinational Logic	Week 6	6
Sequential Logic	Week 7	6
Registers, Counters and Memory Unit	Week 8 &9	12
Processor Logic Design	Week 10 &11	12
Design of Arithmetic and Logic Unit	Week 12 &13	12
Computer Design	Week 14 &15	12

2. Course components (total contact hours per semester):			
Lecture: 90	Tutorial: 30	Practical/Fieldwork/Internship:60	Other:

<p>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)</p> <p>The student must work at least for 6 hours per week which is equivalent to 90 hours per semester.</p>
<p>4. Development of Learning Outcomes in Domains of Learning</p> <p>For each of the domains of learning shown below indicate:</p>
<p>a. Knowledge</p>
<p>(i) Description of the knowledge to be acquired</p> <ul style="list-style-type: none"> - Understanding Numbers Systems. - Understanding basic operations of number systems. - Understanding Boolean algebra. - Understanding Digital Circuits. - Understanding Combinational and Sequential logic. - Understanding Registers, Counters, and Memory.
<p>(ii) Teaching strategies to be used to develop that knowledge</p> <ul style="list-style-type: none"> - Class lectures, notes, and labs. - Internet Resources. - Tutorials and weekly assignments.
<p>(iii) Methods of assessment of knowledge acquired</p> <ul style="list-style-type: none"> - Assignments and Quizzes - Midterms - Lab evaluation
<p>b. Cognitive Skills</p>
<p>(i) Cognitive skills to be developed</p> <ul style="list-style-type: none"> - Ability to solve problems. - Ability of deduction and inference. - Ability of analysis and design
<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <ul style="list-style-type: none"> - Assignments.

- Labs.
(iii) Methods of assessment of students cognitive skills - Exams - Labs evaluation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed
(ii) Teaching strategies to be used to develop these skills and abilities
(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility Assignments, Attendance 10% Midterm Exam1 20% Midterm Exam2 20% Final Exam 50%
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. - Ability to use Digital Simulators.
(ii) Teaching strategies to be used to develop these skills - Conferences - Labs - Home works.
(iii) Methods of assessment of students numerical and communication skills - Designing of Circuits using Simulators.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required
(ii) Teaching strategies to be used to develop these skills
(iii) Methods of assessment of students psychomotor skills

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Attendance, Participation and Labs evaluation	Each week	10
2	First month exam	6th week	25
3	Second month exam	10th week	25
4	Final exam	According to the exams schedule	40
5			
6			
7			
8			

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)

D a y	8-9	9-10	10-11	11-12	1-2	2-3	3-4
Sunday							
Saturday					Office Hours		
Monday							
Tuesday							
Wednesday							

E. Learning Resources

1. Required Text(s)

M. Morris Mano, "Digital Logic and Computer Design", Prentice Hall 2008.

2. Essential References M. Morris Mano, "Digital Logic and Computer Design", Prentice Hall 2008.
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)
4-.Electronic Materials, Web Sites etc Resources on the Web: http://www.asic-world.com/digital http://www.delabs-circuits.com/cirdir/digital.html
5- Other learning material such as computer-based programs/CD, professional standards/regulations -packages used to simulate digital logic design such as MaxPlus II from Altera company.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) - A Lecture room appropriate for 30 students with a personal computer, a data show and a smart board. - Digital Logic Design Lab.
2. Computing resources
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching - Students have to evaluate the teacher rendering before obtaining results through the university web portal <i>edugate</i> .
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching - Periodical review of contents in the department to increase the effectiveness of the subject. - Comparison of the course content with similar courses offered in others colleges - Updating of the learning resources according to later developments in the domain of programming concepts.

- Using modern technologies in teaching and providing additional support to students.

4. 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)

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.