

Course Specification

204GE Computer Programming for Engineers 204هـ برمجة الحاسب للمهندسين

Descriptions of what should be included in program and course specifications and in the annual and periodic reports are included in Section 2.4 of Part 2 of NCAAA Handbook

Institution	Najran University
College/ Department	Engineering / Electrical and Civil Engineering

A Course Identification and General Information

1. Course title and code.	Computer Programming for Engineers 204GE
2. Credit hours	3 (2 , 2 , 0)
3. Program(s) in which the course is offered (If general elective available in many program indicate this rather than list programs)	Electrical and Civil Engineering Programs
4. Name of faculty member responsible for the course	Dr. Seif Shebl
5. Level/year at which this course is offered	5 th for EE, 6 th for CE
6. Pre-requisites for this course (if any)	----
7. Co-requisites for this course (if any)	----
8. Location if not on main campus	

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.	
Code	Learning outcomes
CLO1	Develop Computer Algorithms.
CLO2	Distinguish different data types.
CLO3	Identify the Basic Structure and syntaxes of Programming languages.
CLO4	Apply C in solving mathematical, physical and engineering problems.
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)	
Plans for developing and improving	

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.

No.	List of Topics	No of Weeks	Contact hours
1.	Introduction to programming languages	Week 1	4 hours
2.	Input and output in C language.	2,3,4	12 hours
3.	Studying the syntaxes of C language.	5,6	8 hours
4.	Sequential, selection and repetitive structures of C language.	7,8,9	12 hours
5.	Arithmetic and mathematical expressions.	10,11	8 hours
6.	Functions, arrays and pointer.	12,13,14	12 hours

2. Course components (total contact hours per semester):

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Others
30	-----	30	-----	-----

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) :

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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 should demonstrate an ability:

- To understand the role of each component in a computer
- To understand the purpose of an operating system
- To understand what processes are required to run a C program
- To understand the differences between syntax errors, run-time errors, and logic errors, and how to avoid them and to correct them
- To understand the use of data types and the differences between the data types int, double, and char
- To learn how to return a value from a function
- To understand compound statements
- To learn how to compare numbers and characters
- To learn how to use the relational, equality, and logical

(ii) Teaching strategies to be used to develop that knowledge
<ul style="list-style-type: none"> • Lectures • Tutorials • Computer experiments using C-Free software.
(iii) Methods of assessment of knowledge acquired
<ul style="list-style-type: none"> • Class participation and homework assignments • Class quizzes • Mid-term exam. • Final Lab exam • Final Exam.
b. Cognitive Skills
(i) Description of cognitive skills to be developed
<p>The student should demonstrate an ability:</p> <ul style="list-style-type: none"> • To learn how to solve a programming problem in a careful, disciplined way • To learn how to read data values into a program and to display results • To introduce structure charts as a system documentation tool • To learn how to use the switch statement as another technique for selecting among multiple alternatives • To learn how to use the C for , while , and do-while statements for writing loops and when to use each statement type • To see how to access external data files in a program and to be able to read from input files and write to output files using file pointers • To understand how to pass individual array elements and entire arrays through function arguments
(ii) Teaching strategies to be used to develop these cognitive skills
<ul style="list-style-type: none"> • Solve different applications of computer programming during the tutorials. • Solve programming problems using different ways to show the students how the efficient

solution is to be considered.

- Use computer experiment tests to solve practical computing problems.

(iii) Methods of assessment of students cognitive skills

- Class participation and homework assignments.
- After performing the coding test, students have to submit a detailed solution.
- One Midterm exams has to be done.
- Final Exams at the end of the semester plus final lab exam.

c. Interpersonal Skills and Responsibility

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

- During lab sessions, students have to deal with each other to get help and cooperate in completing their programming tasks.
- Students have to deal in a team workgroup during programming sessions,
- Students have the chance during the tutorials and lectures to ask any difficult questions to improve their self-confidence.
- During the classes students have to act in an ethical and responsible behaviour.
- During the different exams students have to act in an ethical and responsible behaviour.

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

- Computer experiments tests
- Lectures and tutorials.

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

- Record the marks of the students every lab.
- There is a computer experimental test every week.
- Midterm and Final term exams

d. Communication, Information Technology and Numerical Skills			
(i) Description of the skills to be developed in this domain.			
Some skills are:			
<ul style="list-style-type: none"> To understand the role of each component in a computer To understand the purpose of an operating system To understand what processes are required to run a C program To understand how control flows between function main and other functions 			
(ii) Teaching strategies to be used to develop these skills			
<ul style="list-style-type: none"> Open one of the PC cases to learn about different components in there. Solve some short quizzes in front of the students to help them develop their own ability for solving similar or near problems. 			
(iii) Methods of assessment of students numerical and communication skills			
<ul style="list-style-type: none"> After performing the coding test, students have to submit a detailed solution. One Midterm exams has to be done. Final Exams at the end of the semester plus final lab exam 			
e. Psychomotor Skills (if applicable)			
(i) Description of the psychomotor skills to be developed and the level of performance required			
Not applicable			
(ii) Teaching strategies to be used to develop these skills			
Not applicable			
(iii) Methods of assessment of students psychomotor skills			
Not applicable			
5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. Essay, test, group project,	Week due	Proportion of Final

	examination etc.		Assessment
1	Quizzes and Computer assignment	Every chapter	20%
2	Home work assignment	Every week	10 %
3	Mid-Term exam	6	20 %
4	Final lab exam	14	20 %
5	Final Term exam	The end of the term	30 %

D Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

6 hours weekly as office hours

E Learning Resources

1. Required Text(s)	
Text Book	"Computer Programming in C" by V. RAJARAMAN Eastern Economy Edition.
2. Essential References	
Reference 1	
Reference 2	
Reference 3	
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)	
Reference 1	
Reference 2	
Reference 3	
4-.Electronic Materials, Web Sites etc	
Reference 1	
Reference 2	
Reference 3	
5- Other learning material such as computer-based programs/CD, professional standards/regulations	
Reference 1	
Reference 2	
Reference 3	

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.)	
Accommodation 1	Lecture room for 25 students with PC equipped with the required software
2. Computing resources	
Resources 1	PC for each student
Resources 2	C programming software installed on these PC's
3. Other resources (specify --e.g. If specific laboratory equipment is required, list requirements or attach list)	
Resources 1	None
Resources 2	

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching	
Strategy 1	• Complete course evaluation questionnaire by the students.
Strategy 2	• Open discussion for the students to touch their weak and strong points in the subject.
Strategy 3	• Feedback from the mid-term exam records.
Strategy 4	
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department	
Strategy 1	Seminars for the teacher, to show his lectures arrangement and progress in front of all the staff members in the department.
Strategy 2	
Strategy 3	
3 Processes for Improvement of Teaching	
Process 1	Use more tutorial and videos to demonstrate the concepts of various course topics.
Process 2	
Process 3	
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)	
Process 1	Re-check the final term exams for some random students by another faculty member in the same field subject inside the department.
Process 2	
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.	
Plan 1	Re-improve for the subject course contents by an external committee members in the same field of study in another institution.
Plan 2	