Department of …Mathematic…………………….

College of …Education………………………….

University of Salahaddin……………………….

Subject: Advance programming/C++

Course Book – *For* Year 4

Lecturer's name: Dr Salar Mustafa Majeed

Academic Year: 2017/2018

Course Book

1. Course name	Advance Programming /C++
2. Lecturer in charge	
3. Department/ College	Mathematic/Education
4. Contact	e-mail: salar.majeed@us.edu.krd Tel: (optional)
5. Time (in hours) per week	Theory: 2 Practical: 2
6. Office hours	Sunday :8.30-12.30, Wednesday:8.30-12.30
7. Course code	
8. Teacher's academic profile	PhD University of Glamorgan- Faculty of Advanced Technology- Math&Computing/Uk **Specific specialization**: Operations Research **Subjects under teaching:** Computer Science: C# ; C++ and Matlab, Applied Statistic, Applied Mathematics, and Data Analysis **Software**: C++, **C#** ,Matlab, Minitab, ArcGIS, Neural ware, SPSS **Research Methods:** Clustering, GIS, simulation of queuing modelling, Statistic and Neural Network.
9. Keywords	

10. Course overview:

This is a second course for Computer Scientists, following on from the second year course Matlab. Students will study in this course C++ language. Experience with more than one language is necessary. The aim of the course is to provide students a thorough grounding in those programming languages. It provides the candidates with a very good foundation that will help the student to use the previous skills that they have gained in many upcoming courses.

I have produced useful handouts that it contains all the information on the work that it has been covered in the lecture. The handouts will also include step-by-step worked examples and exercises to help the students to understand the basic principles and concepts of C^{++}.

At the end of the course students will be expected to be able to use and write programs using C^{++} in different areas of application.

During this part of the course there will be two hours of practical session every week. This will encourage the student to put their theory that they have learnt in the previous lessons into practice to write meaningful programs. This will aid them to understand the concept of the language in the theoretical way.

11. Course objective:

The aim of the course is to provide students a thorough grounding in those programming languages. Experience with more than one language is necessary. Application domains; Levels of language; Different philosophies to solve problem; Language improvement.

At the end of the course students will be expected to be able to use and write programs using C^{++} in different areas of application like, applied statistic, graph theory, Security, differential equation, and Numerical analysis

12. Student's obligation

The students are required to do three theoretical tests on 27 marks and practical test every week in the lab on 13 marks. The final grad will be the mean of three tests (27%) plus mean of lab test (13%), so together 40% and the final exam 60% (40 theoretical +20 practical)

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13. Forms of teaching

I have only needed a blackboard to explain the examples of the programs, step-by-step with the command of students. That will help the students to understand the concepts of C++.

14. Assessment scheme

As we mentioned above the students are required to do practical test every week in the lab on 13 marks. This will encourage the student to put their theory that they have learnt in the previous lessons into practice to write meaningful programs, with new idea. The structures of the subject require writing a C++ program as in worked examples and exercises.

15. Student learning outcome:

This is a second course for Computer Scientists, following on from the second year course Matlab. Experience with more than one language is necessary. The aim of the course is to provide students a thorough grounding in those programming languages. It provides the candidates with a very good foundation that will help the student to use the previous skills that they have gained in different areas of application, like, applied statistic, graph theory, Security and Numerical analysis

16. Course Reading List and References:

Cross references in the course study allow the student to fill any gaps that might arise.

Nassir, H.S.2009. C^{++} programming with 469 solved problems.

Stanley, B.L. 1998. C^{++} Primer.

Deitel, H.M. 2005. C^{++} How to program.

Malik, D.S. C^{++} programming from problem analysis to program design.

Note: C++ programming for any other authors.

17. The Topics:	Lecturer's name
Week 1: Introduction: overviews of the history of programming languages.	(2 hrs)
Week 2: The programming process: Algorithms, great number of worked examples.	
Week 3: Flowchart	
Week 4: Great number of worked examples.	

Week 5: Great number of worked examples. **Week 6**: Programming in C^{++} , program structure, data types, variables, expressions. **Week 7**: Input, output statements, character string, worked examples. **Week 8:** Great number of worked examples. **Week 9**: Relational expressions, the if statement, if-else statement, examples. **Week 10**: Great number of worked examples. **Week 11**: For loop, while loop. **Week 12**: Great number of worked examples. **Week 13:** Great number of worked examples. **Week 14**: Array, examples. **Week 15**: Great number of worked examples. **Week 16:** Great number of worked examples. **Week 17**: Great number of worked examples. **Week 18**: Great number of worked examples. **Week 19:** Function **Week 20**: Great number of worked examples **Week 21**: Great number of worked examples **Week 22**: Great number of worked examples **Week 23**: Great number of worked examples	
18. Practical Topics (If there is any)	
As above but in the lab	(2 hrs)

19. Examinations:

Write a C++ program to ......

Draw a flow chart to ......

What is the output of the below program

20. Extra notes:

Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.

21. Peer review

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