

## T6. Course Specification (CS)

Institution <b>Najran University</b>	Date <b>4/5/1439 H</b>
College/Department: <b>Collage of Arts &amp; Sciences / Department of Mathematic</b>	

### A. Course Identification and General Information:

1. Course title and code : <b>Introduction to Programming (280Math-3)</b>			
2. Credit hours : <b>3 Hours</b>			
3. Program(s) in which the course is offered. <b>Program of Mathematics</b>			
4. Name of faculty member responsible for the course: <b>Dr. Mohammad_Abdulkawi</b>			
5. Level/year at which this course is offered : <b>Level 5</b>			
6. Pre-requisites for this course (if any) : <b>Calculus II</b>			
7. Co-requisites for this course: none: <b>None</b>			
8. Location if not on main campus : College of Science and Arts-Najran- Department of Mathematics (Male + Female) College of Science and Arts-Sharoura- Department of Mathematics (Male + Female)			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input type="checkbox"/>	What percentage?	<input type="checkbox"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage	<b>100%</b>
c. e-learning	<input type="checkbox"/>	What percentage	<input type="checkbox"/>
d. Correspondence	<input type="checkbox"/>	What percentage	<input type="checkbox"/>
f. Other	<input type="checkbox"/>	What percentage	<input type="checkbox"/>
Comments :			

## B. Objectives الأهداف

<p>C. What is the main purpose for this course</p> <p><b>1- Giving students the basic concepts of programming.</b></p> <p><b>2- Giving students the basics of one of programming languages.</b></p> <p><b>3- Develop the student's ability to implement programming language in solving mathematical problems.</b></p>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <p><b>1- Review the syllabus, references and strategies of teaching of this course periodically and compare it with the same course in other local and regional Mathematics departments.</b></p> <p><b>2- Using e-learning systems such as Blackboard, virtual classroom system etc.</b></p>

**C. Course Description (Note: General description in the form used in the Bulletin or handbook should be attached).**

<p><b>Course Description :</b></p> <p>This course introduces the basic principles of programming and their application to the solution of mathematical problems using a high level programming language (C++ or C or Fortran or Visual Basic or others). Also it covers the basic data types, control structures, functions, arrays and pointers.</p>
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1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
<ul style="list-style-type: none"> <li><b>Introduction to Computer :</b> <ul style="list-style-type: none"> <li>- Hardware and Software</li> </ul> </li> </ul>	1	4
<ul style="list-style-type: none"> <li><b>Algorithms and Flow charts</b> <ul style="list-style-type: none"> <li>- Design strategies for solving problems using algorithms and flow charts</li> </ul> </li> </ul>	2	8
<ul style="list-style-type: none"> <li><b>Introduction to Programming Language (C++ or C or Fortran or Visual Basic or others)</b></li> </ul>	1	4
<ul style="list-style-type: none"> <li><b>Fundamental Programming Concepts</b> <ul style="list-style-type: none"> <li>- Types of Variables</li> <li>- Data Types</li> <li>- Comment statements</li> <li>- Numeric Operations</li> <li>- I/O statements</li> </ul> </li> </ul>	2	8

<ul style="list-style-type: none"> <li>• <b>Control Structures Programming:</b> <ul style="list-style-type: none"> <li>- Conditional statements (If, If/Else, if/else/if)</li> <li>- , switch statement.</li> <li>- Go to statement</li> <li>- Loops (For, While, Do while)</li> <li>- break and continuation Statements</li> <li>- Subprograms (subroutines, the rules of the use of subroutines.</li> </ul> </li> </ul>	2	8
• <b>Mathematical Examples and Exercises</b>	1	4
<ul style="list-style-type: none"> <li>• <b>Data Structures:</b> <ul style="list-style-type: none"> <li>- Arrays</li> <li>- Matrices</li> <li>- Operation on Arrays and Matrices</li> </ul> </li> </ul>	2	8
<ul style="list-style-type: none"> <li>• <b>Library functions:</b> <ul style="list-style-type: none"> <li>- definition and function call</li> <li>- declaration or prototype function</li> <li>- returned values</li> <li>- parameter and argument</li> </ul> </li> </ul>	2	8
<ul style="list-style-type: none"> <li>• <b>Files Handling :</b> <ul style="list-style-type: none"> <li>- Open file for reading</li> <li>- Open file for writing</li> </ul> </li> </ul>	1	4
• <b>Mathematical Examples and Exercises</b>	1	4

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30			15		45
Credit	2			1		3

3- Additional private study/learning hours expected for students per week.

4

4- Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table)

**Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes.

**Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain).

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Identify the computer components: hardware - software	Lecture Cooperative learning Self-Learning. eLearning	Paper Exams Practical Exam Assignments
1.2	State the concept, procedures, and steps of algorithms		
1.3	Demonstrate knowledge of program design.		
2.0	Cognitive Skills:		
2.1	Design algorithms to solve simple problems	Lecture Cooperative learning Problem solving Self-Learning eLearning	Paper Exams Practical Exam Assignments
2.2	Explain how algorithms and Processing programs work		
2.3	Write a correct computer program as implementation of algorithms for simple problems		
2.4	Apply programming skills to some mathematical problems		
3.0	Interpersonal Skills & Responsibility:		
3.1	Analyze the problems we face in real life and solve them according to an algorithm	Lecture Cooperative learning Problem solving	Card Observation
4.0	Communication, Information Technology, Numerical:		
4.1	Use Smartphone in Programming	Cooperative learning Problem solving	Card Observation

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First Exam	Fifth week	15
2	Second Exam	Eleventh week	15
3	Quizzes and assignment	3 week–14 week	10
4	Final Practical Exam	Fifteenth week	20
5	Final Exam	On time	40
	Total		100%

#### D. Student Academic Counseling and Support

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

**There are office hours for this course which are 3 hours/ week.**

#### E. Learning Resources

1. List Required Textbooks :

- زياد عبد الكريم القاضي. لغة البرمجة C++ مدخل الى برمجة الكائنات الموجهة. مكتبة المجتمع العربي للنشر والتوزيع 2009.

5- List Essential References Materials (Journals, Reports, etc.)

1. محمد الشريدة، احمد الشرايعه، سهير فارس. تعلم البرمجة باستخدام لغة C++. عمان- دار المسيرة للنشر والتوزيع 2004.
2. Bjarne Stroustrup .The C+ + Programming Language. 3rd. Ed. AT&T 1997

3. List Electronic Materials Web Sites, Facebook, Twitter, etc.

<http://www.coursat.org/subject-cpp>  
<http://www.cplusplus.com/doc/tutorial/>  
[http://www.tutorialspoint.com/cplusplus/cpp\\_pdf\\_version.htm](http://www.tutorialspoint.com/cplusplus/cpp_pdf_version.htm)  
<http://www.barmaje.com/topics/77>

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

- 1- Programming software (C++ or Fortran or Visual Basic , etc)
- 2- CD with programs.

#### F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

**1-20 students in the laboratory.**

**2-20 computers**

**3-printer**

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

**1-Computer lab**

2. Computing resources (AV, data show, Smart Board, software, etc.

**1- Data show**

**2- Smart board**

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

None

#### **G. Course Evaluation and Improvement Processes:**

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

Student Course Evaluation Survey at the end of the semester

2. Other Strategies for Evaluation of Teaching by the Instructor or by the department.

1- Student Course Evaluation Survey at the end of the semester

2- **Peer Evaluation**

3- **Applying the new system of Faculty staff members evaluation**

3. Processes for Improvement of Teaching:

**1- Attend training courses or workshops related to the course.**

**2-Follow-up new teaching strategies and apply them for this course**

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)

Theoretical exam

1- **Course Portfolio**

2- **Course report**

3- **Peer review**

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

1- **Reviewing the course contents periodically.**

2- **Updating the text book and references.**

3- **Course Portfolio**

4- **Course report**

5- **Trend Analysis**

**Name of instructor: Dr. Mohammad Abdulkawi**

**Signature :** \_\_\_\_\_ **Date Report Completed: 4/5/1439H**

**Name of field experience teaching staff:** \_\_\_\_\_

**Program coordinator: Dr. Hamoud Al-hadad** \_\_\_\_\_

Signature: \_\_\_\_\_ Date received: \_\_\_\_\_