

Course Profile			
Course Code:	AU-212	Course Title:	Computer Programming & Applications
Credit Hour:	3 (2+1)	Contact Hour:	3+3
Course Teacher Name:			
Semester:		Fall 2018	
Course Content			
<p>Introduction to Computer: What is computer? Parts, Hardware, Software, data and people. Differences between super, mainframe, personal computers and work stations. Operating system types and comparison of current operating systems. Introduction to database and knowledge of the fundamental concepts of DBMS and its application in different areas, storage, manipulation and retrieval of data. Introduction to parallel processing as well as clusters.</p> <p>Data Processing and Networking: Transforming data into information, how computers represent and process data, Number System. Networking basics, types of networks, network topologies, networking protocols and network media.</p> <p>Computer Application in Engineering: Introduction to Computer Aided Engineering (CAE). Effective use of CAE to solve real world engineering problems, including plotting, model building and mathematical tools. Awareness of dedicated software used in different engineering applications.</p> <p>Introduction to Programming Environment: Introduction to Computer Languages, Difference between high, low and machine level language, Compiler and interpreter, Steps to prepare a program, pseudo code, and flow chart.</p> <p>Variables & Data types: Concept of variables, constants and data types. Different data types used in programming language such as integer, float, character, string etc.</p> <p>Operators and Expressions: Arithmetic, Unary, Relational and Logical operators, Assignment and Conditional operator.</p> <p>Loops: For loop, while loop, do while loop.</p> <p>Decisions: If statements, else-if construct, switch statement, break and continue statement.</p> <p>Functions or Procedures: Defining and accessing a function, passing arguments and returning values to functions, more than one function, external variables and pre-processor directives.</p> <p>Arrays & Strings: Defining Arrays, referring to individual elements of an array, passing arrays to a function, multidimensional arrays. String, string constants and variables, String I/O functions: gets () and puts (), String functions, Array of strings.</p>			
Course Objectives			
To develop proficiency in writing down program using C- language and ability to use application program for general purpose engineering calculations.			
Relevant Program Learning Outcomes (PLO)			
The course is designed to achieve dominantly the following PLOs:			

1	Engineering Knowledge:	<input checked="" type="checkbox"/>	7	Environment and Sustainability:	<input type="checkbox"/>
2	Problem Analysis:	<input type="checkbox"/>	8	Ethics:	<input type="checkbox"/>
3	Design/Development of Solutions:	<input type="checkbox"/>	9	Individual and Team Work:	<input type="checkbox"/>
4	Investigation:	<input type="checkbox"/>	10	Communication:	<input type="checkbox"/>
5	Modern Tool Usage:	<input checked="" type="checkbox"/>	11	Project Management:	<input type="checkbox"/>
6	The Engineer and Society:	<input type="checkbox"/>	12	Lifelong Learning:	<input type="checkbox"/>
Course Learning Outcomes (CLO)					
CLO #	CLO	Domain	Taxonomy Level	PLO	
On completion of the course, the student will be able to:					
CLO-1	DESCRIBE the concept of computer systems and its architecture, networks, database and operating systems.	Cognitive	2	1	
CLO-2	WRITE pseudo code and a flow chart for a given problem.	Cognitive	3	5	
CLO-3	WRITE a computer program using C Language.	Cognitive	3	5	
CLO-4	USE application software to perform engineering calculations.	Cognitive	3	5	
Assessment					
Sessional Assessment:					
Check the appropriate assessment method:					
MCQ with single correct answer	<input checked="" type="checkbox"/>	MCQ with multiple correct answers	<input type="checkbox"/>	Reflective journal and critical incidents	<input type="checkbox"/>
Practicum	<input type="checkbox"/>	Peer Assessment	<input type="checkbox"/>	Self-Assessment	<input type="checkbox"/>
Class behavior	<input type="checkbox"/>	Seminar Presentation	<input type="checkbox"/>	Written Tests	<input checked="" type="checkbox"/>
Quiz	<input checked="" type="checkbox"/>	Mention (any other)	_____		
Note: It is required for course teacher to maintain the evidences of the above chosen assessment methods and develop performance criteria and rubrics if required.					
End Assessment:					
Objective Type	<input type="checkbox"/>	Essay Type	<input type="checkbox"/>	Structured	<input type="checkbox"/>
Short Questions	<input checked="" type="checkbox"/>	Long Questions	<input checked="" type="checkbox"/>	Concept Questions	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Mention (any other)	_____		
Note: It is required for course teacher to maintain the evidences of the above chosen assessment methods and develop performance criteria and rubrics if required.					
Performance Criteria					
Assessment Type	Marks		Schedule (Week No.)		

Mid-term Sessional test	50% of total Sessional marks	Week No. 10																											
Quiz / Written Test	50 % of total Sessional marks	Week Nos. 01 to 15																											
Practical Sessional	20	Week Nos. 01 to 15																											
Practical Viva Voce	30	17																											
Final Examination	60	18																											
Note: It is required for course teacher to clearly indicate your performance criteria at the start of the academic session. Teachers are encouraged to establish performance criteria for the attainment of their course.																													
Evaluation and CQI																													
<table border="1"> <tr> <th colspan="3">Exam Map for MCQ – Sessional Test</th></tr> <tr> <th></th><th>Topic 1</th><th>Total</th></tr> <tr> <td>Remembering</td><td>4</td><td>4%</td></tr> <tr> <td>Understanding</td><td>5</td><td>5%</td></tr> <tr> <td>Applying</td><td>1</td><td>1%</td></tr> <tr> <td>Analyzing</td><td></td><td></td></tr> <tr> <td>Evaluating</td><td></td><td></td></tr> <tr> <td>Creating</td><td></td><td></td></tr> <tr> <td>Total</td><td>10</td><td>10 (100 %)</td></tr> </table>			Exam Map for MCQ – Sessional Test				Topic 1	Total	Remembering	4	4%	Understanding	5	5%	Applying	1	1%	Analyzing			Evaluating			Creating			Total	10	10 (100 %)
Exam Map for MCQ – Sessional Test																													
	Topic 1	Total																											
Remembering	4	4%																											
Understanding	5	5%																											
Applying	1	1%																											
Analyzing																													
Evaluating																													
Creating																													
Total	10	10 (100 %)																											
Note: It is required for a course teacher to maintain the Exam Map for evaluating the Blooms taxonomy implementation. It is also required to maintain if any other evaluation has been made in the course.																													
Books																													
Text Book:	Waite Group's Turbo C Programming for the PC (The Waite Group), Robert Lafore, Rev Sub edition																												
Reference Book:	1. Let Us C. Author: Yashavant Kanetkar Publisher: BPB Publications,2012 2. Computer Science – A breadth first approach with C. Author: Paul Nagin Publisher: John Wiley & Sons 3. Peter Norton ,Peter Norton's Introduction to Computers, 6th Edition, McGraw-Hill Publications, December 2004s																												