A ST THE OF TECHNOLOGY		National Institute of Technology Meghalaya An Institute of National Importance													CURRICULUM		
Progr	amme	ne Master of Computer Applications										Academic Year of Regulation			2024-25		
Depa	rtment												Semester			II	
Cours	se	I		O =	la			D D ::		Credit	Credit Structure			Marks Distribution			
Code	9	Course Name Pre-Requisi								Т	Р	С	INT	MID	END	Total	
CA404	4	Object Oriented Programming and Design								0	0	3	50	50	100	200	
	CO's Statement														Bloom's	Taxonomy	
	_	To provide students in-depth understanding of Object Oriented Programming using C++								CA404.1	C++ and able concepts of for	re identify the to infer the ba unction and op e C++ code to	sic concepts, perator overlo	the pading in	Create lems		
Cours	Pro	To prepare students to design and code various projects using Object Oriented Programming paradigm in C++								CA404.2	and polymorphism, with their various ty by writing C++ code to design solutions			Create			
Objectiv	ves									CA404.3	exception handling in C++, and able to w code using those concepts			•	Create		
										CA404.4		oret the concep nplate Libraries			Create		
COs						Mappin	g with	n Program O	utcomes (PO	s)	-			Ma	apping with	PSOs	
COS	P	01	PO2	PO3	PO4	PO5	PC)6 PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CA404	• •	2	2	1		1					1		1	2	1	1	
CA404		3	3	3	2	1	1			1		1		1	2	1	
CA404		3	3	3	2	1		1		1		1		1	3	2	
CA404 CA40		3	2	1	2			1						1	2	3	
CA404	4 2.	.75	2.50	2.00	2.00	1.00	1.0		 SYLLABUS	1.00	1.00	1.00	1.00	1.25	2.00	1.75	
No.								Content	JILLABOO					Hours	;	COs	
ı	Journey	Introduction to C++: Journey from C to C++; Revisiting the concepts of classes, objects, data encapsulation, data hiding, static members, friend functions, pointers to members, constructors and destructors; CA404.1															
	Function and Operator Overloading: Function overloading, operator overloading of unary, binary, special operators; Type conversion – basic to class, class to basic, class to class.								06								
III	Introdu constru	Inheritance: ntroduction to inheritance, different types; Single inheritance – public and private derivation, protected member, onstructor and destructor in derived class; Multilevel and multiple inheritance; Ambiguity resolution; lierarchical and hybrid inheritance; Virtual base class; Object slicing.								10	CA404.2						
IV	Polymo Compi	Polymorphism: Compile-time polymorphism – function overloading, recapping operator overloading; Run-time polymorphism – pointer to base and derived class, virtual functions, concept of VPTR and VTABLE;								LE;	06	CA404.3					
V	Input/0	Input/Output and Exception Handling: Streams, classes for file stream, opening a file, detecting the EOF, file modes, file pointers and their functions, types of files, i/p and o/p functions for sequential and random access, error handling.							10								
VI	Templates and STL: Function templates, class templates, advantages and disadvantages, Standard Template Library.							05	CA404.4								

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Essential Readings

- 1. Robert Lafore, "Object-Oriented Programming in C++", 4th Edition, Sams Publishing, 2001.
- 2. E Balagurusamy, "Object-Oriented Programming in C++", 8th Edition, McGraw-Hill Education India, 2020.

Total Hours

Yashvant Kanetkar, "Let Us C++ ", BPB Publication, 2020.

Supplementary Readings

- 1. P.J. Deitel and H.M Deitel, "C++ How to Program", 10th Edition, Pearson Publication, 2016.
- 2. Herbert Schildt, "C++: The Complete Reference", 4th Edition, McGraw-Hill Education India, 2017.
- 3. Bjarne Stroustrup, "The C++ Programming Language", 3rd Edition, Pearson Education India, 2002.