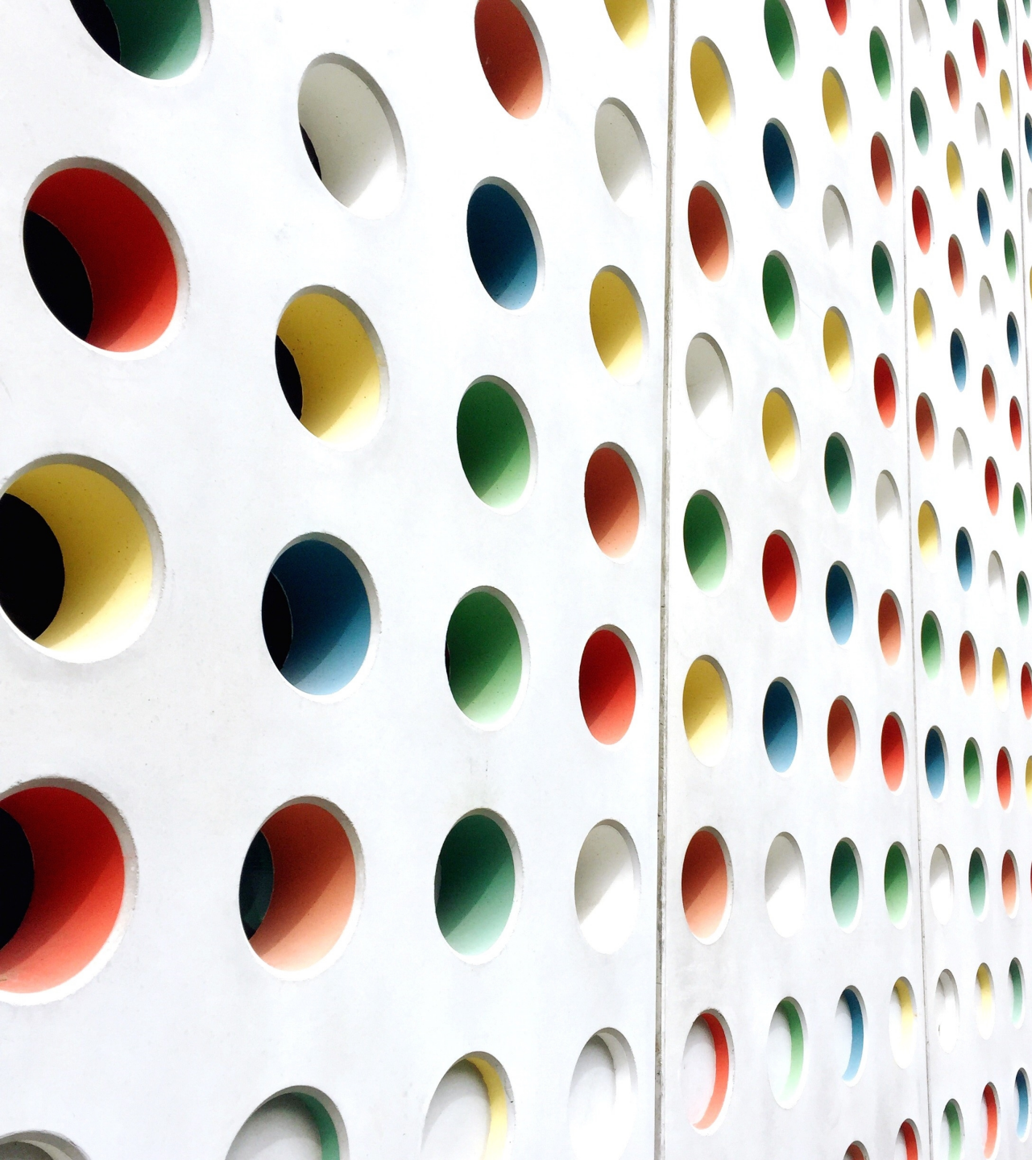

Topic: Introduction to object oriented programming

COURSE TITLE:

SOFTWARE DEVELOPMENT FUNDAMENTALS-2

Course Outcome

The following are expected outcomes from the students after the completion of this course

Outcomes		Cognitive level
CO1	Explain various object oriented concepts like class and objects, friend function, function and operator overloading etc.	Understand level (Level-2)
CO2	Apply and implement the relationships of association, aggregation, composition and inheritance	Apply level (Level-3)
CO3	Analyze the output of source code and able to debug the errors	Analyze level (Level-4)
CO4	Design the class diagram for real life problems and implement it using virtual functions, abstract classes, templates and exception handling.	Create level (Level-6)
CO5	Apply SQL commands to create tables and perform various operations like insert, delete, select etc.	Apply level (Level-3)

Assessment method

External Assessment –

- T1 – 20 Marks
- T2 – 20 Marks
- End Semester Exam – 35 Marks

Internal Assessment

- Tutorial Assignments - 5 Marks
- Mini-project - 10 Marks
- Attendance - 10 Marks

Basic structure of C++

- C++ program has following sections in its basic structure,
  - Directives/libraries inclusion section
  - Main function section
  - Function body section
- Directives inclusion section allows to include the required libraries for the program.
- Main function section defines the sequence of code that has to be executed.
- Function body section defines the functionality of the functions. It has declaration and executable statements.

Basic structure of C++

```
#include <directives>

using namespace std;

int main()

{
 Declaration statements
 Executable statements
 return 0;

}
```

Directives inclusion section

Function body section

Main function section

Basic structure of C++

```
#include <directives>
using namespace std;
int main()
{
 Declaration statements
 Executable statements
 return 0;
}
```

It includes the directives/libraries mentioned in angle brackets

Basic structure of C++

```
#include <directives>

using namespace s

int main()

{
 Declaration statements
 Executable statements
 return 0;

}
```

This statement informs compiler to use std namespace in which the standard C++ libraries are declared.

Basic structure of C++

```
#include <directives>

using namespace std;

int main()
{
 Declaration statements
 Executable statements
 return 0;
}
```

Main function definition part.

Basic Input/Output in C++

The following are operations used for input and output in C++,

S. No.	Operation	Purpose
1	cout	Standard Output stream
2	cin	Standard Input stream
3	cerror	Standard error output stream
4	clog	Standard log output stream

Basic Input/Output in C++

- **cout** basically outputs stream on console.
- **cerror** is used to output error messages on standard console.
- **clog** directs the log messages to standard console output.
- cerror and clog can be redirected to another output stream.

Output in C	Output in C++
printf(“%d”, x);	cout<<x;
printf(“Hello World”);	cout<<“Hello World”;
printf(“The average is %f”, avg);	cout<<“The average is ”<<avg;
printf(“\n”);	cout<<endl;

Basic Input/Output in C++

- **cin** basically inputs stream and directs to the variable.

Input in C	Input in C++
scanf(“%d”, &x);	cin>>x;
scanf(“%s”, str);	cin>>str;
scanf(“%d %s”, &num, str);	cin>>num>>str;

References

- Herbert Schildt, “C++: The complete reference”, Mc Graw Hill Osborne media, 4th edition, 2017
- Robert Lafore, “Object oriented programming in C++”, SAMS, 4th edition, 2002