NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF COMPUTER APPLICATIONS

COURSE PLAN – PART I			
Name of the programme and specialization	MCA , Computer Applications		
Course Title	OBJECT ORIENTED ANALYSIS & DESIGN		
Course Code	CA729	No. of Credits	3
Course Code of Pre-requisite subject(s)	CA716, CA710		
Session	July, 2019	Section (if, applicable)	B
Name of Faculty	Mr.K.Vignesh	Department	Computer Applications
Official Email	vigneshk@nitt.edu	Telephone No.	9940033292
Name of Course Coordinator(s) (if, applicable)	Dr. B. JANET		
Official E-mail	janet@nitt.edu	Telephone No.	
Course Type (please tick appropriately)	✓ Core course	☐ Elective course	

Syllabus (approved in BoS)

Object Model – Evolution, Elements – Nature of Classes and Objects – Relationships among Classes - Classification – Identification of classes and objects – Key abstractions and mechanisms – Basic and Advanced Modeling techniques.

Methodology – Modeling and UML – Rambaugh"s Method – Booch Method – Jacobson et al Method – Comparisons – UML – Static-Dynamic Models – Diagrams –Use Cases.

Process of design, design principles, architectural patterns, design document, difficulties and risks in design - Frameworks: reusable subsystem. Design patterns – Singleton, observer, adapter, Façade, proxy with examples. - Pattern Categories - Relationships between patterns - Pattern descriptions – Patterns based Applications – Object Oriented Database

Java - Features – Structure – Elements of Java – Array, String, String Buffer, Vectors – Methods – Object Oriented Features- Classes, Objects – Constructors – Package – Inheritance – Interface – Abstract Class - Special types of classes.

Applet Programming – AWT – Graphics - Event Handling – Exception Handling – Utilities and Collections – I/O Streams - Multithreaded Programming - Swings - J2EE Architecture.

REFERENCES:

1. Grady Booch et al, "Object-Oriented Analysis and Design with Applications", 3rd Edition, Pearson Education, 2007.
2. Michael Blaha and James Rumbaugh, "Object-Oriented Modeling and Design with UML", 2nd Edition, Pearson Education,2005.
3. PatricNaughton , Herbert Schildt, "Java 2 Complete Reference", Tata McGraw Hill, 1999.
4. Joshua Bloch, "Effective Java", Addison-Wesley; 3rd Edition, 2018.
5. Bruce Eckel, "Thinking in Java", Prentice Hall; 4th Edition, 2006.
6. Erich Gamma, Richard Helm, Ralph Johnson & John Vlissides, "Design Patterns: Elements of Reusable Object-oriented Software", Pearson Education India, 2004.

COURSE OBJECTIVES

To learn the concepts of Object Oriented Analysis and Design; exposing the development of OOAD based applications.

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO)
1. Define the fundamentals of OO approach	**1,2,3**
2. Design OO Application using design patterns	**1,2,3,5**
3. Solve real world problems by applying OOAD principle	**4,5**
4. Acquire expertise in Java Programming	**1,2,3,4**

COURSE PLAN – PART II

COURSE OVERVIEW

This Course introduces the concepts of Object oriented paradigms which involves the various programming languages includes classes and their methods . To learn the concepts of Object Oriented Analysis and Design; exposing the development of OOAD based applications. It introduces the various method of learning like Booch and Jacob son et al methods and various UML diagram and Methods.
It Introduces the concept of Basic java and their features and implement the string buffer methods . And also learning the constructor and inheritance for code reusability . It also provides the Applet programming and event handling in various levels.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1. 1	Week 1/ 3hrs	Object Model – Evolution, Elements	Power Point Presentation
2.		Nature of Classes and Objects – Relationships among Classes	Power Point Presentation

3.		Classification – Identification of classes and objects	Power Point Presentation
4.	Week 2/ 3hrs	Key abstractions and mechanisms	Power Point Presentation
5.		Basic and Advanced Modeling techniques	Power Point Presentation
6.		Methodology – Modeling and UML	Power Point Presentation
7.	Week 3/ 4hrs	Rambaugh"s Method – Booch Method	Power Point Presentation
8.		Jacobson et al Method – Comparisons	Tutorial & Power Point Presentation
9.		UML – Static-Dynamic Models	Tutorial & chalk and talk
10.		Diagrams –Use Cases	Tutorial & chalk and talk
11.	Week 4/ 4hrs	Process of design, design principles	Power Point Presentation
12.		Architectural patterns	Tutorial & chalk and talk
13.		Design document	Tutorial & chalk and talk
14.		Difficulties and risks in design	Power Point Presentation
15.	Week 5/ 3hrs	Frameworks: reusable subsystem	Power Point Presentation
16.		Design patterns – Singleton, observer	Chalk and Talk, tutorial
17.		Adapter, Façade, proxy with examples	Power Point Presentation
18.	Week 6/ 3hrs	Pattern Categories - Relationships between patterns - Pattern descriptions	Power Point Presentation
19.		Patterns based Applications – Object Oriented Database	Power Point Presentation
20.		Java - Features – Structure	Tutorial & chalk and talk
21.	Week 7/ 4hrs	Elements of Java – Array	Tutorial & chalk and talk
22.		String, String Buffer	Tutorial & chalk and talk
23.		Vectors –Methods – Object Oriented Features	Tutorial & chalk and talk
24.		Classes, Objects – Constructors	Tutorial & chalk and talk
25.	Week 8/ 3hrs	Package – Inheritance	Tutorial & chalk and talk
26.		Interface – Abstract Class	Tutorial & chalk and talk
27.		Special types of classes.	Tutorial & chalk and talk

28.	Week 9/ 4hrs	Applet Programming – AWT	Tutorial & chalk and talk
29.		Graphics - Event Handling	Tutorial & chalk and talk
30.		Exception Handling – Utilities and Collections	Tutorial & chalk and talk
31.		I/O Streams	Tutorial & chalk and talk
32.	Week 10/ 3hrs	Multithreaded Programming	Tutorial & chalk and talk
33.		Swings	Tutorial & chalk and talk
34.		J2EE Architecture	Tutorial & chalk and talk

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cyscle Test 1	As per schedule	60 mins	20
2	Cyscle Test 2	As per schedule	60 mins	20
3	Assignment and Case study	7^{th} to 10^{th} week	-	10
CPA	Compensation Assessment*	12^{th} week		40
4				
5	Final Assessment *	As per schedule	180	50

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

- The students through the class representative may give their feedback at any time to the course chairman which will be duly addressed.
- The students may also give their feedback during class committee meeting.
- Course Outcome Survey' form will be distributed on the last working day to all the students and the feedback on various rubrics will be analyzed.
- The COs will be computed after arriving at the final marks.

COURSE POLICY (including compensation assessment to be specified)

Students who are all absent for both the cycle test for a genuine reason may be given CPA and it will cover the portion of cycle test 1 and 2.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

The students can get their doubts clarified at any time with their faculty member with prior appointment

FOR APPROVAL

Course Faculty **CC- Chairperson** **HOD**