

SACRED HEART COLLEGE (AUTONOMOUS)

Department of Computer Science

BSc Computer Applications

Course plan

Academic Year 2015 – 16

Semester V

COURSE PLAN
JAVA Programming

Objectives:

The objective of this course is to

- Cover issues related to the definition, creation and usage of classes, objects and methods.
- Discuss the principles of inheritance and polymorphism and demonstrate through problem analysis assignments how they relate to the design of methods, abstract classes and interfaces.
- Provide the foundation of good programming skills by discussing key issues to the design of object-oriented software, including programming design patterns, automatic documentation techniques and programming testing.
- Cover the basics of creating APIs as well as allow students to explore the Java Abstract Programming Interface (API) and Java Collection Framework through programming assignments.

Term – I			
Sl. No	Sessions	Topics	Method
1	1	Object oriented programming	Using PPT presentation
2	2	Encapsulation-Inheritance-Polymorphism	Using PPT presentation
3	3	Genesis of Java-characteristics of java	Using PPT presentation
4	2	Program structure-identifiers-operators-variables-literals	Using PPT presentation
5	2	Data types-Arrays	Using PPT presentation
6	1	Control Statements-selection statements-iterative statements-jump statements	Using PPT presentation
7	1	Loops- while loop-do while loop- for loop	Using PPT presentation

8	1	Classes-declaration –object references-instantiation	Using PPT presentation
9	2	Method declaration-method calling – this operator	Using PPT presentation
10	1	Constructor-constructor overloading	Using PPT presentation
11	1	Method overloading-method overriding	Using PPT presentation
12	1	Inheritance-super class	Using PPT presentation
13	2	Dynamic method dispatch-final-static-abstract classes	Using PPT presentation
14	2	String Handling	Using PPT presentation
15	2	Packages - creating packages-using packages	Using PPT presentation
16	2	Interfaces-Exception - Handling Techniques-try-catch	Using PPT presentation
Before the 1st Internal Exam – 40% of the syllabus will be completed			
17	1	First Internal Examination	
Term II			
18	2	Handling Techniques-throw-throws-finally	Using PPT presentation
19	2	Multithreading- creation of multithreaded program	Using PPT presentation
20	2	Thread class-Runnable interface	Using PPT presentation
21	2	Thread priorities	Using PPT presentation
22	2	Thread Synchronization	Using PPT presentation
23	2	Event Handling-Delegation Event Model-Event Classes-Sources of Events-Event Listeners	Using PPT presentation
24	1	AWT: Frame Class	Using PPT presentation
25	1	AWT Controls: Label-Button-Checkbox-List-Choice control-Text Field-Text Area	Using PPT presentation
26	1	Lay out Managers	Using PPT presentation
27	3	Applet Fundamentals -applet tag-applet life cycle-passing parameters to applets	Using PPT presentation
Before the 2nd Internal Exam – 80% of the syllabus will be completed			

28	1	Second Internal Examination	
Term III			
29	1	Working with graphics –Line-Rectangle-Oval – Arc- color setting	Using PPT presentation
30	1	I/O Streams: DataInputStream-DataOutputStream	Using PPT presentation
31	2	BufferedReader-BufferedWriter classes	Using PPT presentation
Before the Semester Exam – 100% of the syllabus will be completed			
32	10	Seminar	
33	12	Revision	

**COURSE PLAN
MATHEMATICAL ANALYSIS**

COURSE OBJECTIVES
To identify the basic properties of real numbers.
To compute the limit points of a set , the interior points of a set , closure of a set etc.
To test the convergence of sequence
To evaluate limit of sequence using important theorems.
To identify the problems related to monotonic sequences.
To understand the basic properties of complex numbers.

Text Books:

1. S.C.Malik, Savitha Arora - Mathematical Analysis. Revised Second edition.
2. J.W. Brown and Ruel.V.Churchill - Complex Variables and Applications, 8th edition. Mc.Graw Hill.

Session s	Topic	Method	Remarks
1	Introductory Session	Lecture Method	
2	Intervals	Lecture Method	
3	Bounded and unbounded sets	Lecture Method	
4	Supremum, Intimum	Lecture Method	
5	Problems	Interaction	
6	Order completeness in R	Lecture Method	
7	Archimedian property of real numbers	Lecture Method	
8	Theorems	Lecture Method	
9	DEdekind's form of completeness property	Lecture Method	
10	Neighbourhood of a point	Lecture Method	
11	Interior point of a set	Lecture Method	
12	Problems	Interaction	
13	Open set	Lecture Method	
14	Theorems	Lecture Method	
15	Limit point of a set	Lecture Method	
16	Problems	Interaction	

17	Bolzano weierstrass theorem for sets	Lecture Method	
18	Closed sets	Lecture Method	
19	Theorems	Lecture Method	
20	Theorems	Lecture Method	
21	CIA – I	1 hr; descriptive answers only	
22	Closure of a set	Lecture Method	
23	Theorems	Lecture Method	
24	Dense sets	Lecture Method	
25	Theorems	Lecture Method	
26	Theorems	Lecture Method	
27	Countable and uncountable sets	Lecture Method	
28	Theorems	Lecture Method	
29	Theorems	Lecture Method	
30	Theorems	Lecture Method	
31	Real sequences	Lecture Method	
32	The range	Lecture Method	
33	Bounds of a sequence	Lecture Method	
34	Convergence of sequences	Lecture Method	
35	Some theorems	Lecture Method	
36	Theorems	Lecture Method	
37	Limit points of a sequence	Lecture Method	
38	Problems	Interaction	
39	Bolzano Weierstrass theorem for sequences	Lecture Method	
40	Limit interior and superior	Lecture Method	
41	Theorems	Lecture Method	
42	Theorems	Lecture Method	
43	Theorems	Lecture Method	
44	Convergent sequences	Lecture Method	
45	Theorems	Lecture Method	
46	Cauchy's general principle of convergence	Lecture Method	
47	Cauchy's sequences	Lecture Method	
48	Algebra of sequences	Lecture Method	
49	Theorems	Lecture Method	
50	Theorems	Lecture Method	
51	Theorems	Lecture Method	
52	Theorems	Lecture Method	

53	Monotonic sequences, subsequences	Lecture Method	
54	Problems	Interaction	
55	Problems	Interaction	
56	Theorems	Lecture Method	
57	Sums and products	Lecture Method	
58	Basic algebraic properties. Further properties	Lecture Method	
59	Vectors and moduli	Lecture Method	
60	Different representations	Lecture Method	
61	CIA II	2 HOURS	
62	Exponential forms	Lecture Method	
63	Problems	Interaction	
64	Arguments of products and quotients	Lecture Method	
65	Problems	Interaction	
66	Product and powers in exponential form	Lecture Method	
67	Problems	Interaction	
68	Problems	Interaction	
69	Roots of complex numbers	Lecture Method	
70	Problems	Interaction	
71	Problems	Interaction	
72	Regions in the complex plane	Lecture Method	
73	Problems	Interaction	
74	Discussion on the CIA & REVISION	Interaction	
75 – 83	Seminar		
84 – 90	Revision		

**COURSE PLAN
DIFFERENTIAL EQUATIONS**

COURSE OBJECTIVES
To obtain an integrating factor which may reduce a given differential equation into an exact one and eventually provide its solution
To familiarize the orthogonal trajectory and oblique trajectory
To find the complementary function and particular integrals of linear differential equation.
To describe power series solution, Frobenius method, Bessel equation and differential operator method
To describe the origin of partial differential equation, Lagrange's method and solution of $dx/P=dy/Q=dz/R$

Basic Reference

1. Shepley L. Ross - Differential Equations, 3rd ed., (Wiley India).
2. Ian Sneddon – Elements of Partial Differential Equation (Tata Mc Graw Hill

Sessions	Topic	Method	Remarks
2	Exact differential equations	Lecturing	
2	Exact differential equations	Lecturing	
2	integrating factors	Lecturing	
2	separable equations	Lecturing	
2	separable equations	Lecturing	
2	Homogenous equations	Lecturing	
2	Homogenous equations	Lecturing	
2	linear equations	Lecturing	
2	Bernoulli equations	Lecturing	
2	Bernoulli equations	Lecturing	
2	special integrating factors	Lecturing	
2	Orthogonal trajectories	Lecturing	
2	oblique trajectories	Lecturing	
2	Basic theory of linear differential equations	Lecturing	
2	Basic theory of linear differential equations	Lecturing	
2	The homogeneous linear equation with constant coefficients	Lecturing	
2	The homogeneous linear equation with constant coefficients	Lecturing	

2	The homogeneous linear equation with constant coefficients	Lecturing	
2	The method of undetermined coefficients	Lecturing	
2	The method of undetermined coefficients	Lecturing	
2	The method of undetermined coefficients	Lecturing	
2	Variation of parameters	Lecturing	
2	Variation of parameters	Lecturing	
2	CIA – I	2 hr	
2	The Cauchy – Euler equation	Lecturing	
2	Power series solution about an ordinary point	Lecturing	
2	Power series solution about an ordinary point	Lecturing	
2	solutions about singular points	Lecturing	
2	solutions about singular points	Lecturing	
2	the method of Frobenius	Lecturing	
2	the method of Frobenius	Lecturing	
2	the method of Frobenius	Lecturing	
2	the method of Frobenius	Lecturing	
2	Bessel's equation and Bessel Functions	Lecturing	
2	Bessel's equation and Bessel Functions	Lecturing	
2	Differential operators and an operator method	Lecturing	
2	Differential operators and an operator method	Lecturing	
2	Surfaces and Curves in three dimensions	Lecturing	
2	Surfaces and Curves in three dimensions	Lecturing	
2	solution of equation of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$	Lecturing	
2	solution of equation of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$	Lecturing	
2	Origin of first order and second order partial differential equations	Lecturing	
2	Origin of first order and second order partial differential equations	Lecturing	
2	CIA II	2 HOURS	
2	Discussion on the CIA	Lecturing	
2	Linear equations of the first order	Lecturing	
2	Linear equations of the first order	Lecturing	
2	Lagrange's method	Lecturing	
2	Lagrange's method	Lecturing	
2	REVISION		

COURSE PLAN
DESIGN OF EXPERIMENTS

Learning Objectives:

1. Understood the concept of Linear Estimation, Gauss Markov Theorem
2. Able to do the ANOVA of one way classified data, two way classified data
3. Able to do the Layout and analysis of CRD, RBD, LSD
4. Able to do the analysis of Factorial Experiment

Sessions	Topic	hours	Method	Remarks
1.	Syllabus Discussion	2	Lecturing	
2.	Principles of Experimentation	3	Lecturing	
3.	Linear Estimation	3	Lecturing	Module I
4.	Estimability of Parametric functions	3	Lecturing	
5.	BLUE	3	Lecturing	
6.	Guass_Markov Theorem	3	Lecturing	
7.	Review	3	Class test 1	
8.	Testing of Linear Hypothesis	3	Lecturing,	Module II
9.	ANOVA of one way classified data	4	Lecturing	
10.	ANOVA of two way classified data	4	Lecturing	
11.	ANOVA of two way classified data with Equal number of observations per cell	4	Lecturing	
12.	Layout and Analysis of the basic designs	3		Module III

13.	CRD	2	Lecturing	
14.	RBD	2	Lecturing	
15.	LSD	2	Lecturing	
16.	Missing plot technique	2	Lecturing	
17.	Relative Efficiency of Designs	3	Lecturing	
18.	Introduction to Factorial Experiments	3	Lecturing	Module IV
19.	Main Effects	3	Lecturing	
20.	Interaction and Analysis in 2^n experiments	3	Lecturing	
21.	Seminar	6		
22.	Revision	6		

COURSE PLAN
INTERNET WEB DESIGNING AND CYBER LAWS

COURSE OBJECTIVES

The course aims:

- To explain the basic concepts of internet and internet services
- To explain the facilities for secure communication
- To explain HTML and cyber crimes

Basic Reference

- "Internet Complete Reference", Harley Hahn
- "The Internet", Douglas E. Comer, Prentice –Hall of India, Third Edition.
- HTML Black Book
- "Cyber Law Crimes", Barkha and U. Rama Mohan, Asia Law House, New Edition.

Sessions	Topic	Method	Remarks
2	Introductory Session	Lecturing	
2	Basic Communication	Lecturing	
2	Local Area Network	Lecturing	
2	Packet Switching	Lecturing	
2	Internet: A Network of Networks	Lecturing	
2	ISPs and Network Connections	Lecturing	
2	IP Address	Lecturing	
2	Transmission Control Protocol (TCP),	Lecturing	
2	Domain Names	Lecturing	
2	Electronic mail	Lecturing	
2	Bulletin Board Service (Network News)	Lecturing	
2	Bulletin Board Service (Network News)	Lecturing	
2	browsing the World Wide Web	Lecturing	
2	Automated Web Search (Search Engines		
2	Audio and Video Communication	Lecturing	
2	Faxes	Lecturing	
2	FTP	Lecturing	

2	Remote Login	Lecturing	
2	Introduction to HTML	Lecturing	
2	Formatting Tags,fonts	Lecturing	
2	Lists,	practicals	
2	Frames,Forms	Practicals	
2	Table,Marquee	Practicals	
2	Creating simple websites	Practicals	
2	E-Commerce	Lecturing	
2	Facilities for Secure Communication	Lecturing	
2	Electronic Commerce and Business	Lecturing	
2	Types of Ecommerce	Lecturing	
2	E payment systems	Lecturing	
2	Cyber Crimes	ppt	
2	Computer Crime	ppt	
2	Nature of Crimes	ppt	
2	Penalty for damage to Computer	ppt	
2	Computer system	ppt	
2	tampering with Computer Source Documents	ppt	
2	Hacking	ppt	
2	Computer Related Offences	ppt	
2	Theft	ppt	
2	The Language of Cyberspace.	ppt	