



Shri Sangameshwar Education Society's
Sangameshwar College, Solapur [Autonomous]
 (Affiliated to Purnashlok Ahilyadevi Holkar Solapur University, Solapur)
 Kannada Linguistic Minority Institute
NAAC Accredited with 'A' Grade (III Cycle CGPA 3.39)

Academic Council 5(5.2)
 15th June, 2022

**STRUCTURE OF B.Sc ECS PROGRAMME UNDER CBCS
 PATTERN
 Faculty of Science**

B.Sc ECS THIRD YEAR
 (To be implemented from A.Y. 2022-23)

Table-1

Semester	Course		Teaching Scheme/week		
			Hours	Lectures	Credits
V	AECC-D	Theory-V	3.2	4	2
	DSC-1E	Advanced Java -IX	4.8	6	4
		Practical-IV	4	5	2
	DSC-2E	Python Programming -X	4.8	6	4
		Practical-IV	4	5	2
	DSC-3E	Visual Programming- -XI	4.8	6	4
		Practical-IV	4	5	2
	DSE-4E (I)	Data Communication and Networking -XII	4.8	6	4
	DSE-4E (II)	Web and E-Commerce Technologies	4.8	6	4
SEC-3- Theory Of Computer Science		2.4	3	2	
Total		36.8	46	26	
VI	AECC-E	Theory-V	3.2	4	2
	DSC-1F	Android Application Development -XIII	4.8	6	4
		Practical-V	4	5	2
	DSC-2F	Internet Programming using ASP.Net- XIV	4.8	6	4
		Practical-V	4	5	2
	DSC-3F	React JS-XV	4.8	6	4
		Practical-V	4	5	2
	DSE-4F (I)	System Security - XVI	4.8	6	4
	DSE-4F (II)	Mobile Computing - XVI	4.8	6	4
SEC-4- Compiler Construction		2.4	3	2	



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	Project	4.8	6	4
	Total	41.6	52	30
	Total Semester V and VI	78.4	98	56

Table-2

Semester	Course		EXAMINATION			Credits	
			Marks				
			CA	SEE	Total		
V	AECC-D	Theory -V	15	35	50	2	
	DSC-1E	Advanced Java -IX	30	70	100	4	
	DSC-2E	Python Programming -X	30	70	100	4	
	DSC-3E	Visual Programming- -XI	30	70	100	4	
	DSE-4E (I)	Data Communication and Networking -XII	30	70	100	4	
	DSE-4E (II)	Web and E-Commerce Technologies	30	70	100	4	
	SEC-3 - Theory Of Computer Science		15	35	50	2	
	Total		150	350	500	20	
VI	AECC-D	Theory-V	15	35	50	2	
	DSC-1F	Android Application Development -XIII	30	70	100	4	
	DSC-2F	Internet Programming using ASP.Net XIV	30	70	100	4	
	DSC-3F	React JS-XV	30	70	100	4	
	DSE-4F (I)	System Security - XVI	30	70	100	4	
	DSE-4F (II)	Mobile Computing - XVI	30	70	100	4	
	SEC-4 - Compiler Construction		15	35	50	2	
	DSC-1E	Practical-IV	15	35	50	2	
	DSC-2E	Practical-IV	15	35	50	2	
	DSC-3E	Practical-IV	15	35	50	2	
	DSC-1F	Practical-V	15	35	50	2	
	DSC-2F	Practical-V	15	35	50	2	
	DSC-3F	Practical-V	15	35	50	2	
	DSE-4	Project	30	70	100	4	
	Total		270	630	900	36	
	Total Semester V and VI			420	980	1400	56

**B.Sc (ECS)
(Bachelor of Entire Computer Science)**

B.Sc (ECS) Bachelor of Entire Computer Science is a three years undergraduate program designed to train future professionals, rather than mere 'degree holders'. This course caters to the needs of e-commerce in industry where the students would ultimately find employment and therefore has a completely different approach to learning.

Program Outcomes

B.Sc (ECS) graduates will gain in-depth knowledge in the field of Computer, Science & Technology. The students will have the ability to design, implement and evaluate a computer-based system, process, component and program to meet desired IT needs.

Learning Objectives

1. To impart holistic knowledge about Computer Programming, Networking, Database Management and Web application Development Skills
2. To develop problem-solving skills to formalize general problem statements into precise algorithmic solutions.
3. To train students as Computer Programmer, System Analyst, Data Administrator, Demonstration Officer etc.

Learning Model

The learning methodology includes Lectures, Assignments, Industrial Visits, Certified Courses, EDP, Project work & Seminars, Practical on Computer Programming languages , Networking, Database management , Web Technology, Mathematics, Statistics & Electronics etc.

Career Opportunities

Higher Education: The obvious choice after B.Sc. (ECS) is opting for Post-Graduation -M.Sc. (CS)/M.C.A./M.B.A. Students have a prior knowledge of different aspects of Computer Science and B.Sc. (ECS) graduates often find it easier to success M.Sc. (CS)/M.C.A./M.B.A. as compared to other graduates.

Jobs: National / Multinational Companies and Government sectors as Software and Web Developer, System Engineer, Software Tester, Junior Programmer, System Administrator etc.

**DETAILED SYLLABUS
Of
COURSES OFFERED BY THE PROGRAMME**

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – V) (W.E.F. JUNE 2022)

Academic Council 5(5.2)

15th June, 2022

Course Title: Advanced Java -XII (2261502)

Course Code:DSE-1E

Total Hours 60

Course Credits 4

Total Marks 100

Course Objectives:

The basic objective of this course is to develop web applications with the help of JDBC,JSP,Servlet technology ,JSTL libraries and Hibernate.

Unit No	Content	Hrs.
1	IO programming Introduction,Byte-oriented streams,Character – oriented streams,Object Stream and Serializable interface	7
2	Networking Basics,networking classes and interfaces ,using java.net package,doing TCP/IP and Datagram Programming.	5
3	Servlets What is Servlet? & Advantages of Servlet,Difference between CGI and Servlet Servlet Architecture, Life Cycle of Servlet, Types of Servlet:GenericServlet, HttpServlet,ServletConfig and ServletContext,difference between ServletConfig and ServletContext,Deployment Descriptors, Session Tracking, Using Cookies,HttpSession,URL-Rewriting, Hidden-Form Fields,Servlet Collaboration: RequestDispatcher ,sendRedirect()	12
4	JSP Introduction, Jsp LifeCycle, Jsp Implicit Objects & Scopes,Jsp Directives: page,include,taglib,Jsp Scripting Elements : declaratives, scriptlets,expressions,Jsp Actions: standard action,custom action Standard Actions:useBean tag,setProperty tag,getProperty tag,include tag ,forward tag,param tag,plug-in tag,params tag. fallback tag,directives tag, scriptlet tag,expression tag,Custom Actions	12
5	JSP Standard Tag Library JSTL Core Tags: General purpose Tag,Conditional tag, networking tag,JSTL SQL tags,JSTL formatting tags.	10
6	Hibernate Introduction to hibernate,Architecture of Hibernate,Hibernate annotation,Hibernate dialects,Hibernate web application,Inheritance Mapping: Table per Hierarchy(TPH), TPH using annotation, Table Per Concrete (TPC), TPC using annotation,Table Per Subclass (TPS),TPS using annotation.Hibernate Mapping: collection mapping, Mapping List,Mapping set,Mapping Bag, Mapping Map,One To One,One To Many, Many To Many, Many To one.	14

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C o n o	Expected Course Outcomes <i>On completion of this course, the students should be able to:</i>
1	Acquire the knowledge of IO Programming
2	Implement the client server Program with the help of networking concept
3	Gain the knowledge of Servlet technology
4	Create dynamic HTML content with Servlets and JavaServer Pages, using the JSP Standard Tag Library (JSTL)

Suggested Readings:

1. Java the complete Reference by Herbert Schildt
2. Java Servlet Programming by Jasan Hunter
3. Beginning Java EE5 from Novice to Professionals by K. Makhar & C. Zelenk
4. Java Server Programming by Bayross & Shah
5. Thinking in java by Bruceel
6. Java Server Programming Black book
7. Hibernate - Sharanam Shah & Vaishali Shah
8. "JDBC, Servlet and JSP Black Book"- Santosh Kumar K.
9. "Spring Persistence with Hibernate"- Paul Tepper Fisher, Brian D Murphy.

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – V) (W.E.F. JUNE 2022)**

Academic Council 5(5.2)
15th June, 2022

Course Title: Python Programming -X (2261503)

Course Code:DSC-2E **Total Hours** 60 **Course Credits** 4 **Total Marks** 100

Course Objectives:

The objectives of this course include Introduce the student to Python programming fundamentals, Expose students to application development and prototyping using Python and to teach an example of scripting and interpretative language and compare it with classical compiled programming languages.

Unit No	Content	Hr s.
1	<p>Introduction to Python: Features/Characteristics of Python, Installation and Working with Python, Structure of a Python Program, Writing simple python program, Executing python program using command line window and IDLE graphics window, Python Virtual Machine, Identifiers and Keywords, Operators (Arithmetic operators, Relational operators, Logical or Boolean operators, Assignment Operators, Bit wise operators, Membership operators, Identity operators), Operator Precedence and Associativity.</p> <p>Python Data Types Python Variables, Data types in python, Built-in Datatypes, Bool datatype , Sequences in python, Sets, Literals in python, User Defined Data Types, Constants in python, Type conversion, Input and Output Statements, Command line arguments</p>	10
2	<p>Control Statements Conditional Statements: if, if-else, nested if –else, Looping: for, while, nested loops, Loop manipulation using pass, continue, break, assert and else suite</p> <p>Strings, Collection Lists, Tuples and Dictionaries Strings: Introduction to String, String Manipulation. Collection List: Introduction to List, Manipulating list. Tuples: Introduction to Tuples, Manipulating Tuples. Dictionaries: Concept of Dictionary, Techniques to create, update & delete dictionary items.</p>	08
3	<p>Functions, Modules Difference between a Function and a Method Functions: Defining a function, Calling a function, Advantages of functions, Types of functions, Function parameters: Formal parameters, Actual parameters, Anonymous functions, Global and Local variables, Modules: Importing module, Creating & exploring modules, Math module, Random module, Time module</p>	08
4	<p>Object Oriented Programming Features, Concept of Class & Objects, Constructor, Types of Variables, Namespaces, Types of Methods, Inner Classes, Constructors in Inheritance, Overriding SuperClass Constructors and Methods, Types of Inheritance,</p>	12

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	<p>Abstract Classes and Interfaces, The Super() Method, Operator Overloading, Method Overloading, Method Overriding</p> <p>Multithreading</p> <p>Understanding threads, Difference between Process and A Thread, Creating Threads, Thread Synchronization, Deadlock of Threads, Avoiding Deadlock In a Program.</p>	
5	<p>Regular Expressions</p> <p>Introduction to Regular Expression, Advantages & Operations, Sequence characters in Regular Expression, Powerful pattern matching and searching, Password, email, url validation using regular expression, Pattern finding programs using regular expression</p> <p>Exception Handling: Errors in a Program, Exceptions, Exception handling, Types of Exceptions, User-defined Exceptions</p> <p>Python File Operation</p> <p>Types of File, Opening and Closing a File, Reading and writing to files, Manipulating directories</p>	10
6	<p>GUI Programming</p> <p>Introduction, Advantages of GUI, Introduction to GUI library, Root Window Working with Containers: Frame, Canvas Layout Management, Events and Bindings, Font, Colors, drawing on Canvas (line, oval, rectangle, etc.)</p> <p>Widgets: Label, Button, Checkbutton, Entry, Listbox, Message, Radio button, Text, Spinbox, Scrollbar, Menu etc. Writing Python Programs for GUI applications.</p> <p>Working with Database</p> <p>Steps for Database Connectivity, Working with MySQL Database: Inserting, Retrieving, Deleting and Updating the data working with Stored Procedure.</p>	12

C O N O	Expected Course Outcomes
	<i>On completion of this course, the students will be able to:</i>
1	Understand principles of Python
2	Develop the skills of object oriented programming
3	Solve problems and increase programming capability.
4	Develop the skill of designing Graphical user Interfaces in Python.
5	Acquire the ability to write database applications in Python

Suggested Readings:

1. Core python Programming- Dr.RNageswara Rao
2. Expert Python Programming,: Become a master in Python-By Michał Jaworski, Tare kZiade
3. MySQL for Python:Database Access Made Easy- A.Lukaszewski

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15th June, 2022

Course Title: Visual Programming- -XI (2261504)

Course Code:DSC-3E **Total Hours** 60 **Course Credits** 4 **Total Marks** 100

Course Objectives:

This course introduces computer science and nonmajor students to fundamental programming skills using the VisualBasic Integrated Development environment. Students will learn program design, the fundamentals of event driven object oriented programming,and how to create menu driven programs and multiple form applications

Unit No	Content	Hr s.
1	Introduction to Dot.Net Framework Introduction to DOT NET, DOT NET class framework, Common Language Runtime,Overview, Elements of .NET application, Memory Management, Garbage Collector: FasterMemory allocation, Optimizations, Common Language Integration, Common type system,User and program Interface	08
2	Introduction to C# C# Language elements, Data types -Reference Type and Value Type, Boxing and Unboxing,Enum and Constant, Operators, Control Statements, working with Arrays and Strings,Parameter passing technique:Pass by value and by reference, out parameters, Variable length parameter.	08
3	Object oriented Programming Concepts Working with Indexer and Properties, Constructor and Destructor, working with "static"Members, Inheritance & Polymorphism - Types of Inheritance - Constructor in Inheritance -Interface Implementation - Operator and method Overloading and overriding - Static and Dynamic Binding and Virtual Methods, AbstractClass, sealed keyword.	12
4	Exception Handling and I/O Programming What is Exception, Rules for Handling Exception, Exception classes, Exception Handling keywords, Throwing exceptions, Stream Classes, System.IO and Base classes of Stream,Console I/O Stream,Working with File, Directory classes.	10
5	Delegates,Events & Collection classes Introduction to Delegation,Introduction of events, declaration of Events, Types of delegates, Anonymous Methods, ArrayList, HashTable,Stack,Queue, Writing custom generic & Non generic classes,working with Generic Collection Classes. Multithreading Programming: Thread, Creating a Thread, Thread Class, thread methods, Thread Life Cycle, Multithreading.	12

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6	<p>Windows Forms and ADO.NET</p> <p>Controls: Common control Group, Data, control Group, Dialog control Group, Containercontrol Group, Menus and Context Menus: Menu Strip, Toolbar Strip. SDI and MDIApplications, Evolution of ADO.NET, Connected and Disconnect Classes, EstablishingConnection with Database, Executing simple Insert, Update and Delete, Statements,DataReaderandDataAdapter, Data set and its Advantages, Stored Procedures, ODBC connectivity.</p> <p>LINQ:</p> <p>LINQ to SQL, LINQ queries, Query a collection of objects, Group query results, Perform joins</p>	10
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C O N O	<p>Expected Course Outcomes</p> <p><i>On completion of this course, the students will be able to:</i></p>
1	Adopt Microsoft .NET Framework and Object Oriented Approach.
2	Design and develop console and window based .NET application.
3	Create GUI components in C#.
4	Implement string manipulation, events handling, exception handling & database manipulation

Suggested Readings:

1. "ProgrammingC#" -JesseLiberty,O'ReillyPress.
2. "ProfessionalC#" -Robinsonetal,Wrox Press,2002.
3. "TheCompleteReference:C#" -HerbertSchildt,TataMcGrawHill.
4. "The Complete Reference:Ado.Net"-Jerke,Tata McGraw Hill.
5. "C#for programmer"-Delete-Pearson

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15th June, 2022

Course Title: Data Communication and Networking -IX (2261505)

Course Code: DSC-4E (I)

Total Hours 60

Course Credits 4

Total Marks 100

Course Objectives:

The basic objectives of this course are to Study the basic taxonomy and terminology of the computer networking and describe the OSI and TCP/IP models, acquire knowledge of the application layers and presentation layers, and understand the session layer design issues. Read the fundamentals and basics of the physical layer, and apply them to real-time applications.

Unit No	Content	Hrs.
1	Introduction to Data Communication & Networking : Data Communication: Components, Data Flow, Protocols & Standards, Design Issues of Layers, Connection oriented and connection less services, Network models :- ISO-OSI reference model, TCP/IP reference model.	10
2	Physical Layer : Signals: Analog & Digital Signals, Period, Frequency, Phase, Amplitude, Bandwidth, Bit Rate, Bit Length, Fourier analysis. Transmission Impairment: Attenuation, Distortion, Noise, Transmission Media:-Guided Media-Magnetic Media, Twisted Pair, Coaxial Cable, Fiber Optic Cable, Unguided Media:-Wireless- Radio Waves, Microwaves, Infrared, Satellite Communication.	10
3	Digital Transmission and Switching : Digital Transmission: Manchester & Differential Manchester Coding, Pulse Code Modulation Modulation:- Amplitude Modulation, Frequency Modulation, Phase Modulation Transmission Mode: Parallel, Serial, Synchronous Transmission, Asynchronous Transmission. Multiplexing- Frequency Division Multiplexing, Time Division Multiplexing, Wavelength Division Multiplexing. Switching- Circuit Switching, Message Switching, Packet Switching.	10
4	Data Link Layer Functions and Protocols : Data Link Control: Framing, Flow & Error Control, Protocols: Simplex, Stop and Wait, Stop and Wait ARQ, Go Back N ARQ, Selective repeat ARQ, 19 HDLC, Point to Point protocol. Multiple Access Protocol: ALOHA, CSMA, CSMA/CD, CSMA/CA Channelization, FDMA, TDMA, CDMA.	10
5	Multiple Access Protocol and Network Layer : Design Issues, Ethernet LANS; Connecting LAN and Backbone Networks-Repeaters, Hubs, Switches, Bridges, Router and Gateways, Networks\Layer Functions and Protocols, Routing, Routing Algorithms, Network Layer Protocol Internet-IP Protocol, Internet Control Protocols.	08
6	Transport, Session, Presentation and Application Layer Protocol Transport Services- Error and Flow Control, Connection Establishment and Connection Release, Flow Control & Buffering, TCP/IP protocol suite, Concept of- TCP, UDP, IP, FTP, DNS, Telnet, SMTP, POP, HTTP, WWW, ARP, RARP.	12

C	Expected Course Outcomes
O	<i>On completion of this course, the students will be able to:</i>

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1	Know the basic concepts of data communications and networking.
2	Identify network layered models, the Open System Interconnect (OSI) and the Internet Model using TCP/IP protocols.
3	Explain how noise, attenuation, and distortion affect signal transport, encoding methods of analog and digital data digital transmission. Flow and Congestion control.
4	Identify the use of LAN components like Bridges, Switches, Routers etc. and the backbone networks.
5	Know the basics of network configuration and maintenance.

Suggested Readings:

1. B.A.Forouzan:Data Communications and Networking, Fourth edition, THM Publishing Company Ltd2007..
2. S.Tanenbaum:Computer Networks, Fourth Edition,PHIPvt. Ltd2002

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – V) (W.E.F. JUNE 2022)**

Academic Council 5(5.2)
15th June, 2022

Course Title: Web and E-Commerce Technologies -IX (2261506)

Course Code: DSC-4E (II) **Total Hours** 60 **Course Credits** 4 **Total Marks** 100

Course Objectives:

This course provides an introduction to information systems for business and management. It is designed to familiarize students with organizational and managerial foundations of systems, the technical foundation for understanding information system

Unit No	Content	Hrs.
1	An introduction to Electronic commerce: What is E-Commerce (Introduction And Definition), Main activities E-Commerce, Goals of E-Commerce, Technical Components of ECommerce, Functions of E-Commerce, Advantages and disadvantages of E-Commerce, Scope of E-Commerce, Electronic Commerce Applications, 9 Electronic Commerce and Electronic Business(C2C)(C2G,G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C)	10
2	The Internet and WWW: Evolution of Internet, Domain Names and Internet Organization (.edu, .com, .mil, .gov, .net etc.) , Types of Network, Internet Service Provider, World Wide Web, Internet & Extranet, Role of Internet in B2B Application, building own website, Cost, Time, Reach, Registering a Domain Name, Web promotion, Target email, Baner, Exchange, Shopping Bots	10
3	Internet Security: Secure Transaction, Computer Monitoring, Privacy on Internet, Corporate Email privacy, Computer Crime(Laws , Types of Crimes), Threats, Attack on Computer System, Software Packages for privacy, Hacking, Computer Virus(How it spreads, Virus problem, virus protection, Encryption and Decryption, Secret key Cryptography, DES, Public Key Encryption, RSA, Authorisation and Authentication, Firewall, Digital Signature(How it Works)	10
4	Electronic Data Exchange: Introduction, Concepts of EDI and Limitation, Applications of EDI, Disadvantages of EDI, EDI model,Electronic Payment System: Introduction, Types of Electronic Payment System, Payment Types, Value Exchange System, Credit Card System, Electronic Fund Transfer, Paperless bill, Modern Payment Cash, Electronic Cash	10
5	Planning for Electronic Commerce: Planning Electronic Commerce initiates, Linking objectives to business strategies, Measuring cost objectives, Comparing benefits to Costs, Strategies for developing electronic commerce web sites	08
6	Internet Marketing: The PROS and CONS of online shopping, The cons of online shopping, Justify an Internet business, Internet marketing techniques, The E-cycle of Internet marketing, Personalization e-commerce.	12

C O N O	Expected Course Outcomes <i>On completion of this course, the students will be able to:</i>
1	Understand the basic concepts and technologies used in the field of management information systems;

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2	Have the knowledge of the different types of management information systems;
3	Understand the processes of developing and implementing information systems;
4	Be aware of the ethical, social, and security issues of information systems;

Suggested Readings:

1. G.S.V.Murthy, E-Commerce Concepts, Models, Strategies- :- Himalaya Publishing House, 2011.
2. Kamlesh K Bajaj and Debjani Nag , E- Commerce , 2005.
3. Gray P. Schneider , Electronic commerce, International Student Edition, 2011,
4. HENRY CHAN, RAYMOND LEE, THARAM DILLON, ELIZABETH CHANG E-COMMERCE, FUNDAMENTALS AND APPLICATIONS, Wiley Student Edition, 2011

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – V) (W.E.F. JUNE 2022)

Academic Council 5(5.2)
15th June, 2022

Course Title: Theory of Computer Science (2261507)

Course Code: SEC-3 Total Hours 30 Course Credits 2 Total Marks 50

Course Objectives:

The basic objective of this course is to introduce the basic methods and conclusions of the Theory of Computation. At the end of the course, students learn to apply these methods to problems from different fields and be guided by the results in searching for computational solutions to the problems.

Unit No	Content	Hr s.
1	Preliminaries Basic Definitions, Sets, Various ways of describing a Set, Subsets, operations on Sets, Relations, Properties of relations, Equivalence of relations.	5
2	Finite Automata Introduction, Deterministic Finite Automata, Non Deterministic Finite Automata, The Equivalence of DFAs and NFAs, Finite Automata with ϵ Moves, Equivalence of NFA with ϵ Transitions and NFA without Transitions, Finite Automata with output, Moore Machine, Melay Machine, Equivalence of Moore and Melay Machine.	5
3	Regular Expression and Properties of Regular Sets Regular Expression Operations on set of strings, Regular Expression, Regular Sets, Equivalence of finite automata and regular expression Properties of Regular Sets, The pumping lemma of regular sets, Application of pumping lemma.	5
4	Regular and Context Free Grammars Context Free Grammars (CFG) Derivation and Language generated by grammar, Derivation Trees, Ambiguity of CFG, Simplification of CFG, Normal forms of CFG, Regular Grammars Equivalence of regular grammars and finite automata.	5
5	Pushdown Automata Introduction, Definitions, Equivalence of acceptance by final state and empty stack, Definition of DPDA and NPDA their correlation and examples of NPDA, CFG to PDA: Method and example	5
6	Turing Machine Turing Machine model and definition of TM, Language accepted by TM, Design of TM and examples.	5

C o n	Expected Course Outcomes <i>On completion of this course, the students should be able to:</i>
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1	Acknowledge the formal definitions of machine models.
2	Design Finite machines for a given regular language..
3	Analyze a given FiniteAutomata machine and find out its language.
4	Design pushdown automata machine for given Context Free languages.
5	Design Turing machine for given any computational problem.

Suggested Readings:

1. J.P. Hopcroft, Rajeev Motwani, J.D. Ullman, Introduction to Automata Theory, Languages and Computation, II Edition, Pearson Education, 2001
2. John Martin, Introduction to Languages and Theory of Computation, Tata McGrawHill, 2003.
3. Daniel I.A., Cohen, Introduction to Computer Theory, 2 nd Edition, John Wiley and Sons, Inc, 2000.

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – VI) (W.E.F. JUNE 2022)

Academic Council 5(5.2)

15th June, 2022

Course Title: Android Application Development-XV (2261602)

Course Code: DSC-1F

Total Hours 60

Course Credits 4

Total Marks 100

Course Objectives:

Course objective is to introduce fundamental concepts in Android programming using the Android SDK. Students will learn activities, intents, designing user interfaces using views, data persistence and content providers as well as developing android services.

Unit No	Content	Hrs.
1	Introduction to Android What is Android? ,Setting up development environment,Dalvik Virtual Machine & .apk file extension,Fundamentals:Basic Building blocks - Activities, Services, Broadcast Receivers & Content providers, UI Components - Views & notifications Components for communication -Intents & Intent Filters o Android API levels (versions & version names)	10
2	Application Structure AndroidManifest.xml,Launching emulator uses-permission & uses-sdk,Resources & R.java o Assets,Layouts & Drawable Resources,Activities and Activity lifecycle,First sample Application	10
3	Basic UI design Using Basic Views :TextView , Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views , ProgressBar View, AutoCompleteTextView View . Using Picker Views : TimePicker View , DatePicker View . Using List Views to Display Long Lists : ListView View , Using the Spinner View , Fragments .	10
4	Menu Option menu, Context menu ,Sub menu ,menu from xml ,menu via code Activity and Intents Activity Life Cycle,Explicit Intents,Implicit intents	10
5	Styles & Themes styles.xml, drawable resources for shapes, gradients (selectors) ,style attribute in layout file, Applying themes via code and manifest file	10
6	Content Providers Introduction to SQLite , SQLiteOpenHelper and SQLiteDatabase,Creating , opening and closing database , Working with cursors, Insert, Update, Delete , Building and executing queries,Reading and updating Contacts.	10

C o n t e n t	Expected Course Outcomes
	<i>On completion of this course, the students will be able to:</i>
1	Demonstrate an understanding of the fundamentals of how Android systems work.
2	Demonstrate their skills in utilizing Android software development tools.

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3	Students can design and develop user interfaces for the Android platform.
4	Students are able to apply style and themes in android apps
5	Students are able to use SQLite Database in Android

Suggested Readings:

1. Beginning Android4 Application Development, By Wei-Meng Lee WILEY India Edition WROX Publication
2. Professional Android 4 Application Development, By Reto Meier WROX Publication
3. The official site for Android developers - <https://developer.android.com>

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – VI) (W.E.F. JUNE 2022)**

Academic Council 5(5.2)

15th June, 2022

Course Title: Internet Programming using ASP.Net – XIV (2261603)

Course Code: DSC-2F **Total Hours** 60 **Course Credits** 4 **Total Marks** 100

Course Objectives:

The main objective of this course is to provide the knowledge of Dot Net Frameworks along with ASP.NET web forms and SOAP web services. Student can able to design web form using various server controls and also student can able to implement AJAX in a web pages..

Unit No	Content	Hrs.
1	Introduction of Asp.Net: Evaluation of Asp.Net, Fundamentals of ASP.NET, Understanding architecture ASP.NET, Compilation Technique of ASP.Net, Application Location, Web Page and Web Site life cycle, ASP.Net Page Structure, Page Directives, Self-page and Cross page posting, Postback and ViewState concepts, Application Folders	10
2	Web Server Control: Creating ASP.NET Pages – Web Forms, Working with web controls – Standard, control group, Rich Controls, Different type of List controls, FileUpload, AdRotator, MultiView, Calendar, Create Web User Control	10
3	Validation controls: Introduction of validation, Types of validation, Validation Controls, Validation Groups Master Pages and Themes: Need of Master Pages, Basics of master pages, Creating Master and Content pages, Programmatically assign master pages, Nested Master pages, Event ordering of master pages, Basic Themes and Skins, Creating and Using Themes, Defining multiple skins, Programmatically working with themes. Site Navigation: Site Navigation technique, SiteMapPath, TreeView and Menu Control, Nesting sitemap file, Attach XML file to treeview and menu	10
4	State Management: Introduction of state management, technique, Types of State Management technique-Client side and server side State Management.	10
5	AJAX: What is AJAX and need for AJAX, Client side and server side AJAX, Implementing AJAX with JQuery, Using ASP.NET Ajax Control toolkit, ScriptManager, ScriptMangerProxy, Updatepanel, UpdateProgress, Timer, Understanding Partial Page Updates, RoundedCorners Extender, Editor, Collapsible Panel, Modal Popup, Confirm Button, Calendar Extender, Filtered TextBox, Password Strength, Rating, Slider, TextBox Watermark, Drop Shadow Web Services: What is Web Service? Understanding SOAP, WSDL, Proxy etc. Creating Web services, How to consume web services, to build a WebService application and Client.	10
6	ADO.NET: Accessing Data with ADO.NET, Using Data Sets on Web Forms, Processing Transactions, Working with DML commands, Entity Framework: Entity Framework overview, Modeling and Mapping, Querying a Model, Working with Objects	10

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C o n o	Expected Course Outcomes <i>On completion of this course, the students will be able to:</i>
1	Design a web page with various controls.
2	Perform validation with validation controls.
3	Implement ADO.NET to access data in a web application.
4	Configure and deploy Web Application

Suggested Readings:

1. "Professional ASP.Net"-Evjen, Sivkumar, Wrox Press.
2. "The Complete Reference: Asp.Net"-MacDonald, Tata McGraw Hill.
3. ASP.NET 4.5, Black Book- Kogent Learning Solutions Inc.

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – VI) (W.E.F. JUNE 2022)**

Academic Council 5(5.2)
15th June, 2022

Course Title: React JS- XVI (2261604)

Course Code:DSE-3F **Total Hours** 60 **Course Credits** 4 **Total Marks** 100

Course Objectives:

The basic objective of this course is to learn front end development with react js using class and functional components. Students will learn how to use hooks with functional components.

Unit No	Content	Hrs.
1	Introduction to React JS: Introduction, React versions, Features, Benefits, Applications, React elements, JSX, React component, React.createElement, ReactDOM.render, Architecture of the React Application, SPA JavaScript for React: var, let and const, Arrow function, Control Statements, Loops and iteration, Classes, Properties and Methods, Spread and Rest Operators React Basics: Folder Structure, NPM, JSX, Class Components, Functional Components, Applying CSS, Fragments	10
2	Working With State: state and its significance, Read state and set state, Passing Data Viva “props”, Validating props using propTypes, defaultProps, Destructuring props and state Events: Handling Events, Binding Event Handlers, Methods as Props, Rendering lists: Using react key prop, map function, Conditional Rendering, Index as Key Anti- Pattern	10
3	Component Lifecycle and Error Handling: Understand the lifecycle methods, Component Mounting, Component Updating, Handle errors using error boundaries, Higher Order Components Context: Introduction, uses, Create Context, Context.Provider, Context.Consumer, Reading context in class	10
4	Working with form: Controlled components, Uncontrolled components, Handling Multiple Inputs in Controlled Component, Handling HTML events of HTML controls, Validations NPM Packages: toastr, react-step-wizard, react-select, react-table, react-bootstrap, Modal, tooltip, Credit Cards, Date Picker, Video Player, axios	10
5	Code-Splitting: Need of code splitting, React.lazy, Suspense Hooks: Need of Hooks, Different types of hooks - useState, useEffect, useContext, useRef, useReducer, useCallback, useMemo, useNavigate, Rules of hooks, Building Your Own Hooks Routing with react router: Setting up react router, Understand routing, Configuring route with Route component, Making routes dynamic, Navigating to pages using Link and NavLink component, Redirect Component	10
6	Redux: Introduction, Redux principles, Install and setup redux, Creating actions, reducer and store React Redux: Presentational vs Container components, Understand high order component, Understanding mapStateToProps and mapDispatchToProps usage	10

C O N O	Expected Course Outcomes <i>On completion of this course, the students should be able to:</i>
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1	Implement class components
2	Implement functional components
3	Implements react hooks
4	Implement higher order components
5	Implements react-redux in an application

Suggested Readings:

1. Beginning React, Andrea Chirarelli- Packt.
2. React, Lionel Lopez

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Academic Council 5(5.2)

15th June, 2022

Course Title: System Security -XIII (2261605)

Course Code:DSC-4F (I)

Total Hours 60

Course Credits 4

Total Marks 100

Course Objectives:

The Objective of the course is to learn cryptographic tools, security issues regarding user Authentication, and understand the various access control mechanisms. It will also help to understand various types of malicious softwares and Denial-of-Service attacks.

Unit No	Content	Hrs.
1	Cryptographic Tools : Confidentiality with Symmetric Encryption, Encryption Terminology, Message Authentication and Hash Functions, Public-Key Encryption, Digital Signatures and Key Management, Random and Pseudo Random Numbers.	06
2	User Authentication : Means of Authentication, Password-Based Authentication, Token-Based Authentication, Biometric Authentication, Remote User Authentication, Security Issues for User Authentication.	08
3	Access Control : Access Control Principles, Subjects, Objects, and Access Rights, Discretionary Access Control, Example: UNIX File Access Control, Role - Based Access Control	12
4	Database Security : The Need for Database Security, security issues in Database Management Systems & Relational Databases, Database Access Control, Inference, Statistical Databases, Database Encryption, Cloud Security.	12
5	Malicious Software : Types of Malicious Software (Malware), Propagation- Infected Content- Viruses, Propagation- Vulnerability Exploit- Worms, Propagation- Social Engineering- SPAM Email, Trojans, Payload- System Corruption, Payload- Attack Agent- Zombie, Bots, Payload- Information Theft- Keyloggers, Phishing, Spyware, Payload- Stealthing- Backdoors, Rootkits, Counter measures	10
6	Denial-of-Service Attacks : Denial-of-Service Attacks, Flooding Attacks, Distributed Denial-of-Service Attacks, Application-Based Bandwidth Attacks, Reflector and Amplifier Attacks, Defenses Against Denial-of-Service Attacks, Responding to a Denial-of-Service Attack.	12

C O N O	Expected Course Outcomes <i>On completion of this course, the students will be able to:</i>
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1	Develop an understanding of information assurance as practiced in computer operating systems,distributed systems,networks and representative applications.
2	Gain familiarity with prevalent network and distributed system attacks,defenses against them, and forensics to investigate the aftermath.
3	Develop Basic Understanding Of Cryptography,how it has evolved,and some key encryption techniques used today.
4	Develop An Understanding Of Security Policies(such as authentication,integrity and confidentiality)
5	implement such policies in the form of message exchanges.

Suggested Readings:

1. M.Stamp,"InformationSecurity:PrinciplesandPractice,"2stEdition,Wiley,ISBN:0470626399, 2011.
2. M. E. Whitman and H. J. Mattord, "Principles of Information Security," 4 stEdition,Course Technology,ISBN: 1111138214, 2011.
3. M. Bishop, "Computer Security:Art and Science," Addison Wesley, ISBN: 0 -201-44099-7, 2002.
4. G.McGraw, "Software Security:Building Security In," Addison Wesley,ISBN:0321356705, 2006.

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – VI) (W.E.F. JUNE 2022)**

Academic Council 5(5.2)

15th June, 2022

Course Title: **Mobile Computing -XIII (2261606)**

Course Code:DSC-4F (II) **Total Hours** 60 **Course Credits** 4 **Total Marks** 100

Course Objectives:

Students taking this course will develop an understanding of the ways that mobile technologies can be used for teaching and learning. They will also consider the impact of mobile computing in the field of education.

Unit No	Content	Hr s.
1	Wireless Transmission: Frequencies for radio transmission, Regulations. Signals, Antennas, Signal propagation-Path loss of radio signals, Additional signal propagation effects, Multipath propagation. Multiplexing-Space, Frequency, Time, Code division multiplexing. Modulation- Amplitude, Frequency, Phase Shift Keying, Advanced frequency and phase shift keying, spread spectrum- DSSS, FHSS. Cellular System	06
2	Medium Access Control: CSMA/CD, Hidden and exposed terminals, Near and Far terminals, SDMA, FDMA, TDMA- Fixed TDM, Classical Aloha, Slotted Aloha, Carrier sense multiple access, Demand assigned multiple access, PRMA, Reservation TDMA, MACA, Polling, CDMA.	08
3	Telecommunication System: GSM – Mobile services, Architecture of a GSM System, Protocol Architecture, Radio Interface, Localization and calling: MTC, MOC, Handover, Security-Authentication, Encryption.	12
4	Wireless LAN: Introduction, Infrared v/s radio transmissions, architecture of an infrastructure based IEEE 802.11 and Ad-hoc networks, Protocol architecture, Physical Layer, Format of an IEEE 802.11 frame using DSS. MAC management - synchronization, power management, roaming. Bluetooth Architecture, simple Bluetooth Pico-net.	12
5	Mobile Network Layer: Entities & terminology in Mobile IP, IP packet delivery agent discovery, Registration. Dynamic Host Configuration Protocol (DHCP) Mobile Transport Layer: Traditional TCP- Congestion control, Slow start, fast retransmit/Fast recovery, implications on mobility. Classical TCP- Indirect TCP, Snooping TCP, Mobile TCP	10

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6	<p>Introduction to ANDROID: Android System Architecture, Creating and Running Android Applications, Types of Android Applications, Building blocks, Application Manifest, Application Life Cycle, Application Priority and Process States, Creating and Using Resources, The Activity Life Cycle, Android GUI architecture, Views, Layouts, Creating simple android GUI based applications with event handling such as Sudoku game and To-do list.</p> <p>Using Bluetooth and Managing Networks in ANDROID: Using Bluetooth -Introducing the Bluetooth Service, Controlling the Local Bluetooth Device, Discovering and Bonding with Bluetooth Devices, Managing Bluetooth Connections, Communication with Bluetooth. Managing Networks - Monitoring and Managing Your Internet Connectivity, Managing Active Connections, Managing Your Wi-Fi</p>	12
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C o N o	<p>Expected Course Outcomes</p> <p><i>On completion of this course, the students will be able to:</i></p>
1	To understand concepts of Mobile Communication.
2	To learn the basics of mobile telecommunication system .
3	To be familiar with the network layer protocols and Ad-Hoc networks.
4	To know the basis of transport and application layer protocols
5	To gain knowledge about different mobile platforms and application development.

Suggested Readings:

1. Mobile Computing Technology, Applications and service creation ,Asoke K Telukder, Roopa R Yavagal by TMH.
2. Mobile Computing, Raj Kamal by Oxford
3. Wireless Communications & Networks, Second Edition, William Stallings by Pearson
4. Mobile Computing Theory and Practice-Kumkum Garg-Pearson
5. TCP/IP Protocol Suite by Behrouz A Forouzan, Third Edition, TMH

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER – VI) (W.E.F. JUNE 2022)

Academic Council 5(5.2)

15th June, 2022

Course Title: Compiler Construction

Course Code: SEC-4

Total Hours 30

Course Credits 2

Total Marks 50

Course Objectives:

The main objective of this course is to introduce the major concept areas of language translation and compiler design and to develop an awareness of the function and complexity of modern compilers. This course is a study of the theory and practice required for the design and implementation of interpreters and compilers for programming languages.

Unit No	Content	Hrs.
1	Introduction to compiling Compiler, self-compiler, cross compiler, phases of compiler, compiler construction tools	5
2	Lexical Analysis Role of lexical analyzer, input buffering, specification and recognition of tokens	5
3	Syntax Analysis Role of Parser, writing grammars for context free environments, top down parser: recursive descent and predictive parsers (LL), Bottom-up parser: Operator precedence Parser	5
4	Syntax Directed Translation Syntax directed definitions, construction of syntax tree, bottom-up evaluation of S-attributed definitions, L-attributed definitions.	5
5	Run time environments and Intermediate code generation Source language issues, storage organization and location strategies, parameter passing, symbol table organization and generation, Intermediate languages, declarations, assignments statements and Boolean expressions, case statements, back patching.	5
6	Code generation and Code Optimization Issues in design of a code generator and target machine, run time storage management, basic blocks and flow graphs. The Principal Source of optimization, peephole optimization.	5

C O N O	Expected Course Outcomes <i>On completion of this course, the students should be able to:</i>
1	Introduce the major concepts in areas of language translation and compiler design.
2	Develop an awareness of the function and complexity of modern compilers.
3	Give students the knowledge and skills necessary to develop a language translator or compiler covering a broad range of engineering and scientific applications.

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4	Learn context free grammars, compiler parsing techniques, construction of abstract syntax trees, symbol tables, and actual code generation.
5	Provide a thorough coverage of the basic issues in code optimization techniques.

Suggested Readings:

1. Compilers Principle, Techniques, Tools by Aho, Lam, Sethi and Ulman
2. Compiler Design by Wihelm, Mauer
3. Compiler Design : Theory, Tools and Examples by Bergamann

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SYLLABUS FOR B.Sc ECS THIRD YEAR (SEMESTER - V & VI) (W.E.F. JUNE 2022)**

Academic Council 5(5.2)
15th June, 2022

PRACTICAL LIST

Course Title: Advanced Java -XII (2261607)

Sr.No	Practical List
1.	Develop java socket programming in which client sends a text and server receives it.
2.	Develop a program to demonstrate URL class.
3.	Develop a program to demonstrate InetAddress class.
4.	Develop a program to demonstrate use of Datagram Socket.
5.	Develop a Program to implement Byte-oriented stream and character-oriented stream.
6	Develop a Servlet program to check that life cycle methods are called by web container.
7	Develop a program to create a simple servlet for displaying welcome message.
8	Develop a program to create servlet for session management using cookies,Hidden Form Field
9	Develop a program to create a servlet for session management using URL Rewriting.
10	Develop a simple program to demonstrate the use of request dispatcher.
11	Develop a simple program to demonstrate the use of Send Redirect
12	Develop a program to implement JSTL core tag.
13	Develop a program for communication between HTML & JSP.
14	Develop a simple Hibernate programme.
15	Develop a HB with annotation.
16	Develop a HB Inheritance mapping.

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Academic Council 5(5.2)

15th June, 2022

Course Title: Python Programming -X (2261607)

Sr.No	Practical List
1.	Installing Python and setting up the Python environment.
2.	Develop a program to print strings, numbers and perform simple mathematical calculations.
3.	Develop a program to implement command line arguments.
4.	Develop a program to implement conditional statements -if, if-else, nested if.
5.	Develop a program to implement loops.
6.	Develop a program to manipulate strings like string copy, string concatenation, string comparison, string length, string reverse etc.
7.	Develop a program to show use of Lists and Tuples.
8.	Develop a program which uses dictionaries
9.	Develop a program to implement functions & Modules
10.	Develop a program to implement Package.
11.	Develop a program to implement Constructors.
12.	Develop a program to implement types of Inheritance and Interfaces.
13.	Develop a program to implement Method Overloading and Method Overriding.
14.	Develop a program to implement Operator Overloading.
15.	Develop a program to read and write contents in a file.
16.	Develop a program to demonstrate Exception handling
17.	Develop a program to demonstrate user defined exceptions.
18.	Develop a program to demonstrate the use of regular expressions
19.	Develop a program to draw different shapes
20.	Develop a Program to design Login Page

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15th June, 2022

Course Title: Visual Programming- -XI (2261608)

Sr.No	Practical List
1.	Develop a program to check entered numbers even or odd.
2	Develop a program To get number and display sum of digits.
3	Develop a to check whether the entered year is a leap year or not.
4	Develop aTo Display Date In Various Formats.
5	Develop a programme to illustrate theUse ofAccess Specifiers.
6	Develop a Program To Create a Sealed Class.
7	Develop aProgram To Perform Boxing And Unboxing Operation.
8	Develop a Program to demonstrate multilevel inheritance.
9	Develop a Program to demonstrate single level inheritance.
10	Develop a program to demonstrate multilevel inheritance with virtual methods.
11	Develop a program get lower bound and upperbound an array.
12	Develop a Program To Demonstrate Jagged Array.
13	Develop a Program to demonstrate DivideByZero Exception.
14	Develop a Program To Create A File.
15	Develop a Program to Read theContents of File.
16	Develop a Program to implement BinaryReader.
17	Develop a Program to Design User Interface Using Windows Controls.
18	Develop a Program to design an MDI application.
19	Develop to demonstrate ADO.NET.
20	Develop a Program to demonstrate Insert,Update and Delete Statements.

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Academic Council 5(5.2)
15th June, 2022

Course Title: Android Application Development-XV (2261608)

Sr.No	Practical List
1	Develop a program to set background image using Drawable resource.
2	Develop a programme to display the factorial of a given number.
3	Develop a programme to display selected gender in toast using a radio button.
4	Develop a program to display selected hobbies using a checkbox.
5	Develop a program to display the name of the State using spinner control.
6	Develop a program to create a shape using drawable resource and display on screen.
7	Develop a program to implement various layouts in android.
8	Develop a program to implement implicit and explicit intent in android.
9	Develop a program to display student names using ListView Control.
10	Develop a program to implement putExtra and getExtra methods of Intent.
11	Develop a program to create a database(student) and suitable structure of register table and perform insertion operations.
12	Develop a program to display total rows present in the student table.
13	Develop a program to perform update and delete operations on the register table.
14	Develop a program to display all the records from a table into listview.
15	Develop a program to create a home page using various android components.
16	Develop a program to display student roll numbers in descending order from the stud table.
17	Develop a program to accept roll number and perform delete operation in the stud table.

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Academic Council 5(5.2)

15th June, 2022

Course Title: Internet Programming using ASP.Net – XIV (2261609)

Sr.No	Practical List
1	Develop a program to Design Web Page Which Demonstrates Command Name Property.
2	Develop a program toDesign Scientific Calculator.
3	Develop a program toDesign webpage for student admission which uses Label, TextBox, RadioButton, CheckBox, ListClass, ButtonClass, Calendar, Image, FileUpload etc. controls.
4	Develop a program toDesign web page which demonstrate which code is execute at first either server side or client side.
5	Develop a program toDesign webpage for Self Page Posting and Cross Page Posting.
6	Develop a program toDesign web page which demonstrates App_code using class library. Class library contains methods which check odd,even,prime,Armstrong,Palindrome, Strong and Magicnumber.
7	Develop a program toDesign webpage which demonstrates App_GlobalResources and App_LocalResources.
8	Develop a program to Develop a program toDesign webpage which demonstrates page lifecycle and website lifecycle.
9	Develop a program to Design a simple application which displays selected checkboxes and radio buttons.
10	Develop a program to Design a webpage for image mapping using static and dynamic methods.
11	Develop a program to Demonstrate all methods of insertion of items in list class.
12	Develop a program to Design web page which displays all system fonts, system colors, font size in ListClass. Display text message according to the selected font,size and color.
13	Develop a program to Display Current Year calendar. This calendar shows all holidays in Red Color Within Formation.
14	Develop a program to Display Selected Date In At Least 10 Different Formats.
15	Develop a program to Design XML file which shows College-Stream-Department-Staff-name-quali-exp-subject.
16	Develop a program to Develop a program to Display At Least 5 Different Advertisements.
17	Develop a program to Design a webpage for Wizard and MultiView control.
18	Develop a program to Design web page which uses all validation controls with validation group property.
19	Develop a program to Design Nested Master Pages Using Themes.
20	Develop a program to Design Web Page Which demonstrates working of DML Queries.

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Academic Council 5(5.2)

15th June, 2022

Course Title: React JS- XVI (2261609)

Sr.No	Practical List
1	Develop a javascript program which contains Arrow function, Control Statements & Loops
2	Develop a program to class component with state and props
3	Develop a program to class component with destructuring state and props
4	Develop a program to class component with conditional rendering
5	Develop a program to component to implement component's lifecycle methods
6	Develop a program to component to implement error boundary
7	Develop a program to class components to create and consume Context.
8	Develop a program to a student registration form with proper validations in a class component
9	Develop a program to Implement useState in a functional component
10	Develop a program to Create a signup form with proper validations in a functional component.
11	Develop a program to Create a functional component with react-select, react-step-wizard, react-datepicker, react-bootstrap and toastr
12	Develop a program to Implement useEffect in a functional component
13	Develop a program to Create a functional component to implement CRUD operations with axios.
14	Develop a program to Implement useContext in a functional components
15	Develop a program to Implement useRef in a functional component
16	Develop a program to Implements useNavigate with functional components
17	Develop a program to Implements use Reducer
18	Develop a program to Implement Redux in an application

Course Code: **(2261610)**

Project Work

Course Title: Major Project Work

Instructions: Team size for major project not exceed than two students.

**Chairman
BOS in BSc.ECS**

Academic Council 1(6)
2nd July, 2020

CBCS BSc. ECS PART III SEMESTER V

AECC- V

ENGLISH FOR COMMUNICATION (2261501)

SEE- 35 + CA- 15 = 50 marks

COURSE CREDITS 03L+01T=04

COURSE CONTACT HOUR 60

Course Objectives:

- To make the students comprehend English language in general
- To enhance the quest for knowledge and correct pronunciations
- To strengthen oral and written communication skills with grammar accuracy
- To galvanize soft skills

Course Outcomes:

By the end of the course the students will be able to:

- Use oral and written English effectively and fluently
- Demonstrate their knowledge of correct pronunciations
- Apply English language skills and grammar accuracy in clearing competitive examinations
- Apply their knowledge of Soft Skills to succeed in career as well as in practical life.

Module No and Title:

Module I: Prose

1. The Gift of the Magi: O' Henry
2. The Homecoming: Rabindranath Tagore
3. The California's Tale: Mark Twain

Module II: Poetry

1. The Solitary Reaper: William Wordsworth
2. The Queen's Rival: Sarojini Naidu
3. *Oh! How I faint When I
of You Do Write (Sonnet No 80)* : William Shakespeare
4. The Road Not Taken: Robert Frost

Module. III: Pronunciation Skills

- 1) Basic Sounds in English
- 2) IPA Symbols
- 3) Phonetic Transcription
- 4) Stress and Intonation

Module. IV: Soft Skills

1. Types of 21st Century Skills
2. Learning Skills (4Cs)
3. Preparation for Employment

Reference Books:

**SANGAMESHWAR COLLEGE,
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BA/BSC Part III Compulsory English Literary Mindscapes-I PAH Solapur University, Solapur (With 20% new additions & changes)

CBCS BSc. ECS PART III SEMESTER VI

AECC- E

ENGLISH FOR COMMUNICATION (2261601)

SEE- 35 + CA- 15 = 50 marks

COURSE CREDITS 03L+0IT=04

COURSE CONTACT HOUR 60

Course Objectives:

- To make the students comprehend English language in general
- To enhance the quest for knowledge and correct pronunciations
- To strengthen oral and written communication skills with grammar accuracy
- To galvanize soft skills

Course Outcomes:

By the end of the course the students will be able to:

- Use oral and written English effectively and fluently
- Demonstrate their knowledge of correct pronunciations
- Apply English language skills and grammar accuracy in clearing competitive examinations
- Apply their knowledge of Soft Skills to succeed in career as well as in practical life.

Module No and Title:

Module. I: Prose

- | | |
|----------------------------------|----------------|
| 1. Growing Up: | Joyce Cary |
| 2. God See the Truth, but Waits: | Leo Tolstoy |
| 3. On the Rule of The Road: | A. G. Gardiner |

Module. II: Poetry

- | | |
|---------------------------------------|-----------------|
| 1. Sita: | Toru Dutt |
| 2. My Last Duchess: | Robert Browning |
| 3. Ode to Beauty: | John Keats |
| 4. Song: Go and Catch a Falling Star: | John Donne |

Module. III: Grammar

1. Simple and Multiple Sentences
2. Direct and Indirect Speech

Module. IV: Soft Skills

1. Literacy Skills
2. Life Skills
3. Employability Skills

Reference Books:

BA/BSC Part III Compulsory English Literary Mindscapes-I PAH Solapur University Solapur (With 20% new additions & changes)

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