| | |
|---|---|
| **Course Title** | **Android** |
| **Type of Course** | Core |
| **L T P** | 3 1 0 |
| **Credits** | 4 |
| **Course Prerequisites** | Basic knowledge of computer system |
| **Course Outcome (CO)** | This course will provide knowledge about android and core java. |

**SYLLABUS**

**UNIT I:**

**Introduction to Android and Java:** Installing Android, Creating Hello World, Running on Emulator, Introduction to Java Data types, Loops, Conditionals and Operators.

**Android Architecture and OOPS:** Building Blocks of Android, Java Classes and Objects, Class Methods and Instances, Inheritance and Polymorphism in Java, Interface and Abstract class

**UNIT II:**

**Android UI and Advance Java:** Using resources, Using themes, Debugging Android Code, Settings, Java I/O, Threads and Synchronization

**Android Graphics and Multimedia:** Basic Graphics, Input Handling, Playing Audio, Playing Video

**UNIT III:**

**Persistence in Android:** Accessing Internal Files system, Accessing SD cards, Introduction to SQLite, Data Binding Content Provider

**Network Awareness:** Accessing the Internet, Using Web services, Using Java and Java Script, Location Sensing

**UNIT IV:**

**3D graphics in OpenGL and other views:** OpenGL Introduction, Using Threads and Models, Texture in OpenGL, Making a application in OpenGL, Other standard views in Android

**Widgets and the way ahead:** Android Widget Development, The Path Ahead for Android ,Running Application on device , Android Market Some Do's and Don'ts , Introduction to System programming in Android

| **RECOMMENDED BOOKS** | | | |
|---|---|---|---|
| **Sr. no.** | **Name** | **AUTHOR(S)** | **PUBLISHER** |
| 1. | Learn Java for Android Development | Jeff Friesen | Apress |
| 2. | Android Essentials | Chris Haseman | Apress |
| 3. | Beginning Android Application Development | Wei-Meng Lee | John Wiley & Sons |

| Course Title | Artificial Intelligence |
|---|---|
| Type of Course | Core |
| L T P | 3 1 0 |
| Credits | 4 |
| Course Prerequisites | Basic knowledge of computer system |
| Course Outcome (CO) | This course will provide knowledge about machine learning and artificial intelligence. |

## SYLLABUS

**UNIT I:**

**Introduction to AI :** AI concept, Importance of AI, Evolution of AI, Related Fields of AI.

**Knowledge :** Introduction and Importance of Knowledge, Knowledge based systems, Knowledge Representation, First Order Predicate Logic (FOPL) , Syntax and Semantics of FOPL, Knowledge Organization and Manipulation.

**UNIT II:**

**Natural Language Processing (NLP):** Introduction ,overview of linguistics, Grammars and Languages, Basic Parsing Techniques, syntactic Processing, Semantic Analysis, Natural Language Generation , Natural Language Systems.

**UNIT III:**

**Pattern Recognition** : Introduction, Recognition and Class

**Expert System:** Introduction, Rule-Based Architectures, Nonproduction system architectures, Expert System Shells, Knowledge acquisition and Validation.

**UNIT IV:**

**Learning:** Introduction, Role of Learning, Types of Learning , General Learning Model, Performance Measures.

**Clustering:** basic agglomerative, divisive algorithms based on similarity/dissimilarity measures.

**Applications:** Applications to NLP, vision, robotics, etc.

**RECOMMENDED BOOKS**

| Sr. no. | Name | AUTHOR(S) | PUBLISHER |
|---|---|---|---|
| 1. | Artificial Intelligence | E. Rich and K. Knight, | Tata McGraw Hil |
| 2. | Introduction to artificial Intelligence | E. Charnaik and D. McDermott | Addison- Wesley Publishing Company |
| 3. | Introduction to Artificial Intelligence | E Charniak and D Mcdermott | Addison Wesley |

| Course Code | CSA306-19 |
|---|---|
| Course Title | Web technologies using with ASP.Net |
| Type of Course | Core |
| L T P | 3 1 0 |
| Credits | 4 |
| Course Prerequisites | Basic knowledge of computer system |
| Course Outcome (CO) | This course will provide knowledge about we technologies and programming. |

## SYLLABUS

**UNIT I:**

**Introduction to .NET**: Introduction to .NET Framework, .NET Advantages , Common Language Runtime(CLR) , Common Type System (CTS) , .NET Framework Class Library (FCL) , Microsoft Intermediate Language(MSIL) , Just In Time(JIT) Compiler , Garbage Collection , Phases of Garbage Collection.

**ASP.NET** : Introduction of ASP.NET , Concept of Web Applications , ASP.NET Architecture , Page Composition Parts , ASP.NET Page Life Cycle , Page Life Cycle Events , ASP.NET Server Controls , HTML Server Controls , Web Server Controls

**UNIT II:**

**ASP.NET Controls** : Intrinsic Controls , List Controls , Rich Controls , Validation Controls, User Controls & their uses , Navigation Controls , Login Controls , Custom Controls v/s User Controls, Master and Content Pages in ASP.

**Master Pages:** Creating master pages, Modifying master page content, Loading master page dynamically

**Themes:** What are Themes? , Applying Themes ,Types of Themes , Page Theme , Global Theme.

**UNIT III:**

**State Management in ASP.NET** :What is State Management? ,Types of State Management ,Client-side state management ,Server-side state management ,Using View State ,Session & Application State ,Using cookies & URL Encoding ,Transient Cookie ,Persistent Cookie ,ASP .Net Web Application Security ,Authentication ,Authorization ,Impersonation ,ASP.NET provider model ,Caching ,What & Why of Caching ,Output Caching ,Data Caching ,Page Fragment Caching

**UNIT IV:**

**Building Data Access Components with ADO.NET:** Connected the data access, Disconnected data access, Executing a synchronous database commands, Building data base objects with the .NET framework.

**Maintaining Application State:** Using browser cookies, Using session state, Using profiles.

**Caching Application Pages and Data:** page output caching, partial page caching, data source caching, data caching, SQL cache dependences.

**RECOMMENDED BOOKS**

| Sr. no. | Name | AUTHOR(S) | PUBLISHER |
|---|---|---|---|
| 1. | ASP.NET: The Complete Reference | MatthewMacdonald | Mcgraw Higher Ed |
| 2. | Learning ASP.NET Core 2.0: Build Modern Web Apps with ASP.NET Core 2.0, MVC, and EF Core 2 | Jason De Oliveira and Michel Bruchet | Packt |
| 3. | Asp.Net: The Complete Reference | Matthew MacDonald | McGraw Hill Education |

## CSA308-19 Android (Lab)

**L T P**
**0 0 4**

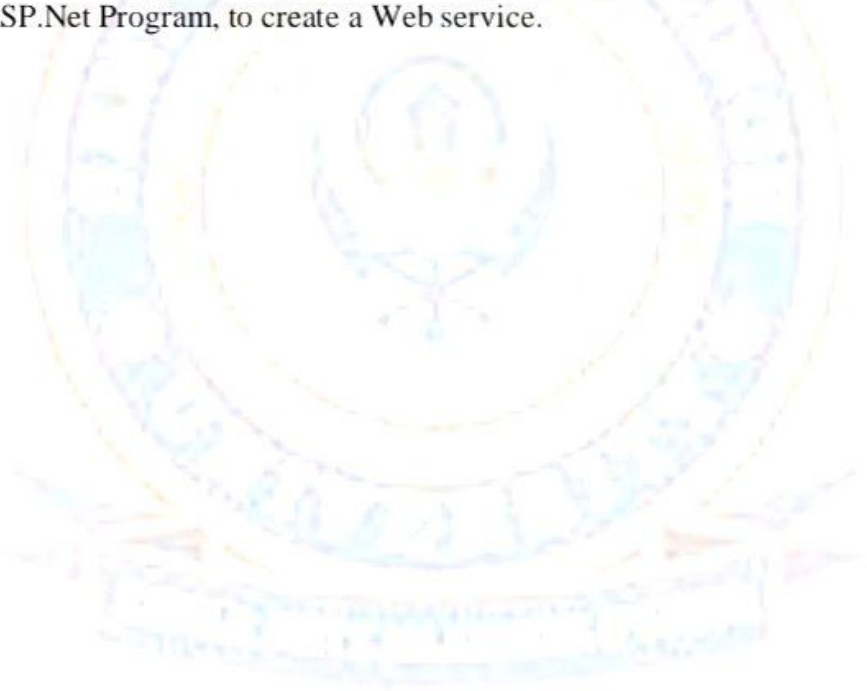
**Objectives:** To become familiar with the operation of Android and Acquire knowledge about the basic concept of writing a program in Android.

1. Introduction to android operating system and study of basic widgets.
2. Study of android life cycle and demonstration of it.
3. Study of intents and its types.
4. Study of list views and adapters.
5. Study of sensors in android.
6. Study of services in android.
7. Study of dialog interfaces in android.
8. Study of touch in android.
9. Study of android database (SQLite)

**L T P**
**0 0 4**

**Objectives:** To become familiar with the operation of ASP.Net and Acquire knowledge about the basic concept of writing a program in ASP.Net.

1. Write a simple ASP.NET program to receive the text and print it using button.
2. Create an ASP.Net WebForms using the Applications.
3. Write a simple ASP.NET program to design an application for dynamically populating checkbox list
4. Write a simple ASP.NET program to design an application using grid view control in web page.
5. Write a simple ASP.NET program to book rooms in a hotel using controls.
6. Write a simple ASP.NET program to upload files using file upload control.
7. Create an ASP.Net Program to create Validation Controls.
8. Create an ASP.Net Program Using Web User controls.
9. Write a ASP.NET program to illustrate the working of widgets (checkbox, radiobox, calendar, search bar).
10. Write a ASP.NET program to connect with MYSQL Database.
11. Write a program to insert data using ASP.NET in MYSQL.
12. Write a program to insert data using ASP.NET in MYSQL.
13. Write a program to insert, delete, update, retrieve, images using ASP.NET in MYSQL/
14. Write a program to work with cascading style sheet using ASP.NET.
15. Create an ASP.Net Program using Database Programming concepts in ADO.Net.
16. Create an ASP.Net Program, to create a Web service.



**Guidelines for project work**

1. Student can opt any programming language/software, Foxpro, C, C++, VC++, Oracle, VB, Java etc. package for project work.

2. An individual or group of maximum 3 (three) students can work on single project

3. Project should strictly developed in lab and student should get it checked from guide time to time.
4. Student should get the Synopsis of project approved from guide well in advance

5. The project work should covers …….

- Cover page
- Certificate
- Declaration
- Acknowledgment
- Index
- Introduction of project
- Data flow diagram
- Source code
- Result/output
- Limitations
- Conclusion
- Bibliography

**Student should submit one copy of project to the college.**

| Course Title | Cyber Security |
|---|---|
| Type of Course | SEC-4 |
| L T P | 4 0 0 |
| Credits | 4 |
| Course Prerequisites | It explains the basic and advance concepts cyber security |
| Course Outcome (CO) | NIL |

## SYLLABUS

**UNIT I:**

**Introduction to Cyber Security:** Overview of Cyber Security, Cyber Threats:- Cyber Warfare-Cyber Crime-Cyber terrorism-Cyber Espionage

**Cyber Security Vulnerabilities and Cyber Security Safeguards:** Cyber Security Vulnerabilities-Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Unprotected Broadband communications, Poor Cyber Security Awareness. Cyber Security Safeguards- Overview, Access control, Audit, Authentication, Biometrics, Cryptography, Deception, Denial of Service Filters, Ethical Hacking, Firewalls, Intrusion Detection Systems, Response, Scanning, Security policy, Threat Management.

**UNIT II:**

**Securing Web Application, Services and Servers:** Introduction, Basic security for HTTP Applications and Services, Basic Security for SOAP Services, Identity Management and Web Services, Authorization Patterns, Security Considerations, Challenges.

**Intrusion Detection and Prevention:** Intrusion, Physical Theft, Abuse of Privileges, Unauthorized Access by Outsider, Malware infection, Intrusion detection and Prevention Techniques, Anti-Malware software, Network based Intrusion detection Systems, Network based Intrusion Prevention Systems, Host based Intrusion prevention Systems, Security Information Management, Network Session Analysis, System Integrity Validation.

**UNIT III:**

**Cryptography and Network Security:** Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography. Overview of Firewalls- Types of Firewalls, User Management, VPN Security Security Protocols: - security at the Application Layer- PGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPSec.

**UNIT IV:**

**Cyberspace and the Law:** Introduction, Cyber Security Regulations, Roles of International Law, the state and Private Sector in Cyberspace, Cyber Security Standards. The INDIAN Cyberspace, National Cyber Security Policy 2013.

**Cyber Forensics:** Introduction to Cyber Forensics, Handling Preliminary Investigations, Controlling an Investigation, Conducting disk-based analysis, Investigating Information-hiding, Scrutinizing E-mail, Validating E-mail header information, Tracing Internet access, Tracing memory in real-time.

**RECOMMENDED BOOKS**

| Sr. no. | Name | AUTHOR(S) | PUBLISHER |
|---|---|---|---|
| 1. | Cybersecurity and Cyberwar: What Everyone Needs to Know® | Allan Friedman and P. W. Singer | Oxford University Press |
| 2. | Cybersecurity for Beginners | RaefMeeuwisse | Cyber Simplicity Limited |

| Course Code | CSA330-19 |
|---|---|
| Course Title | Image Processing |



| Type of Course | DSE-2 |
|---|---|
| L T P | 3 0 0 |
| Credits | 3 |
| Course Prerequisites | Basic knowledge about computer graphic & Mathematics |
| Course Outcome (CO) | To cover the 2-D & 3-D image concept |

## SYLLABUS

**UNIT I:**

**Introduction and Digital Image Fundamentals:** Digital Image Fundamentals, Human visual system, Image as a 2D data, Image representation – Gray scale and Color images, image sampling and quantization

**Image enhancement in Spatial domain:** Basic gray level Transformations, Histogram Processing Techniques, Histogram equalization, Histogram Matching, Spatial Filtering, Low pass filtering, High pass filtering, Mexican Hat Transformation

**UNIT II:**

**Filtering in the Frequency Domain:** Introduction to the Fourier transform and frequency domain concepts, Extension to functions of two variables, low pass filter, high pass filter, Laplace transformation, Image Smoothing, Image Sharpening, Homo-morphic filtering

**Image Restoration and Reconstruction:** Various noise models, image restoration using spatial domain filtering, image restoration using frequency domain filtering, Estimating the degradation function, Inverse filtering.

**UNIT III:**

**Color Image Processing:** Color Fundamentals, Color Models, Pseudo color image processing

**Image Compression:** Fundamentals of redundancies, Basic Compression Methods: Huffman coding, Arithmetic coding, Error free compression, Lossy compression. LZW coding, JPEG Compression standard

**UNIT IV:**

**Morphological Image Processing:** Erosion, dilation, opening, closing, Basic Morphological Algorithms: hole filling, connected components, thinning, skeletons

**Image Segmentation:** point, line and edge detection, Thresholding, Regions Based segmentation, Edge linking and boundary detection, Hough transform

| RECOMMENDED BOOKS | | | |
|---|---|---|---|
| **Sr. no.** | **Name** | **AUTHOR(S)** | **PUBLISHER** |
| 1. | Digital Image Processing | Rafael. C. Gonzalez & Richard E.Woods | Pearson Education |
| 2. | Digital Image Processing | W.K.Pratt.- | John Wiley & sons |
| 3. | Image Processing, Analysis and Machine Vision | M. Sonka | Thomson, Learning, India |