# GANPAT UNIVERSITY

## FACULTY OF COMPUTER APPLICATIONS

## TEACHING AND EXAMINATION SCHEME

| Programme | MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (Mobile Application) | Branch/Spec. | Computer Applications |
|---|---|---|---|
| Semester | II | | |
| Effective from Academic Year | 2018-19 | Effective for the batch Admitted in | June 2018 |

| Subject Code | Subject Name | Teaching scheme | | | | | | | | | | | | Examination scheme (Marks) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Credit | | | | | | Hours (per week) | | | | | | Theory | | | Practical | | |
| | | Lecture(DT) | | | Practical(Lab.) | | | Lecture(DT) | | | Practical(Lab.) | | | CE | SEE | Total | CE | SEE | Total |
| | | L | TU | Total | P | TW | Total | L | TU | Total | P | TW | Total | | | | | | |
| P52A1MP1 | MOBILE PROGRAMMING - I | 4 | - | 4 | 2 | 0 | 2 | 4 | - | 4 | 4 | 0 | 4 | 40 | 60 | 100 | 20 | 30 | 50 |
| P52A2ADM | ADVANCED DATABASE MANAGEMENT | 2 | - | 2 | 2 | 0 | 2 | 2 | - | 2 | 4 | 0 | 4 | 40 | 60 | 100 | 20 | 30 | 50 |
| P52A3SC | SECURITY IN COMPUTING | 4 | - | 4 | - | - | - | 4 | - | 4 | - | - | - | 40 | 60 | 100 | - | - | - |
| P52A4EBM | ECOSYSTEM & BUSINESS MODELS | 4 | - | 4 | - | - | - | 4 | - | 4 | - | - | - | 40 | 60 | 100 | - | - | - |
| P52A5EL3 | ELECTIVE III (IPHONE APPLICATION DEVELOPMENT & LAB -I) | 2 | - | 2 | 3 | - | 3 | 2 | - | 2 | 6 | - | 6 | 40 | 60 | 100 | 20 | 30 | 50 |
| **Total** | | 16 | 00 | 16 | 7 | - | 7 | 16 | - | 16 | 14 | - | 14 | 200 | 300 | 500 | 60 | 90 | 150 |

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| Semester | II | Version | 1.0.0.1 |
| Effective from Academic Year | 2018-19 | Effective for the batch Admitted in | June 2018 |
| Subject code | **P52A1MP1** | Subject Name | Mobile Programming – I |

| Teaching scheme | | | | | | Examination scheme (Marks) | | | |
|---|---|---|---|---|---|---|---|---|---|
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 4 | - | 2 | - | 6 | Theory | 40 | 60 | 100 |
| Hours | 4 | - | 4 | - | 8 | Practical | 20 | 30 | 50 |

Pre-requisites:

Basic knowledge of High Level Programming Language and Object Oriented Programming Concepts using java.

Learning Outcome:

- Understanding about mobile application development technology
- Mobile Application Development for the Android platform using Android Studio

Theory syllabus

| Unit | Content | Hrs |
|---|---|---|
| 1 | **Open Platforms for Mobile**<br>• Introduction to Open Platforms<br>• Android Architecture<br>• Android SDK Features<br>• Android Application Life Cycle<br>• Application Components<br>• Application Priority and Process States | 18 |
| 2 | **User Interface**<br>• Fundamentals of Android UI Design[Button, ImageView, TextView, EditText,CheckBox, Radio Button, Radio Group, Date Picker, Time Picker]<br>• Introducing Layouts[Linear Layout, Relative Layout,Table Layout, Grid Layout]<br>• Introducing Views [ListView, GridView, Spinner] | 15 |
| 3 | **UI Design Essentials**<br>• Intents<br>• Adapters [Simple Adapter, Base Adapter, Custom Adapter]<br>• Resources<br>• Dialogs [Date Picker Dialog, Time Picker Dialog, Alert Dialog, Progress Dialog] | 14 |
| 4 | **Data Storage and Sharing**<br>• Managing data in Files<br>• Reading and Writing Data from and to a File<br>• Introducing SQLite<br>• Manipulating Data using SQLite<br>• CRUD Operations | 13 |

| Practical content | |
|---|---|
| List of programs specify by subject teacher based on above mention topics. | |
| Text Books | |
| 1 | LaurenDarceyandShaneConder,“Android WirelessApplicationDevelopment”,PearsonEducation |
| Reference Books | |
| 1 | RetoMeier,“ProfessionalAndroid2ApplicationDevelopment”,WileyIndiaPvt Ltd(2011) |
| 2 | Teach.Yourself.Android.Application.Development.in.24.Hours.2nd.Edition. |
| | **Question Paper Scheme:**<br><br>**Note for Examiner**<br>Q-1 must be common from any topics from syllabus.<br>Q-2 and onwards must be from specific topics and internal choice or option can be given<br><br>**Paper Structure**<br>Q-1 (AttemptanySix Out of Eight: each question must be 5 marks)---30<br>Questions mustbecoveredallpossiblesection.<br>Q-2 (MustbeFromtopics: Open Platforms for Mobile:(5marks))<br>Q-3 (MustbeFromtopics: User Interface : (10marks))<br>Q-4 (MustbeFromtopics: UI Design Essentials : (10marks))<br>Q-5 (MustbeFromtopics: Data Storage and Sharing : (5marks)) |

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| Programme | MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (MOBILE APPLICATIONS) | Branch/Spec. | COMPUTER APPLICATIONS |
| Semester | II | Version | 1.0.0.0 |
| Effective from Academic Year | 2018-19 | Effective for the batch Admitted in | June-2018 |
| Subject code | P52A2ADM | Subject Name | ADVANCED DATABASE MANAGEMENT |

| Teaching scheme | | | | | | Examination scheme (Marks) | | | |
|---|---|---|---|---|---|---|---|---|---|
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | - | 2 | - | 4 | Theory | 40 | 60 | 100 |
| Hours | 2 | - | 4 | - | 6 | Practical | 20 | 30 | 50 |

Pre-requisites:

Basic knowledge of computer, basic programming language like C, any one basic database application-MS access or Excel is preferable

Learning Outcome:

Will be able to learn design and manage database, transactions, RDBMS, transaction management, database security, efficient searching as well as normalization in database.

Theory syllabus

| Unit | Content | Hrs |
|---|---|---|
| 1 | **Database Concepts and Architecture**<br>• Introduction of Database, Benefits of Database Approach(01)<br>• Structure of the Database System, Types of Database Users and Roles of Database Administrator(01)<br>• Introduction to RDBMS?, Codd's rules for RDBMS, DBMS Vs. RDBMS (02)<br>• Overview of Database System Architecture, Introduction to Distributed Database(02)<br>• Database terms: Relation, Entity, Attribute, Attribute Value, Primary key, Candidate key, Alternate key (01) | 15 |
| 2 | **Normalization & Transaction Control**<br>**Normalization(4)**<br>• First, second and third normal forms (2)<br>• Boyce / Codd normal form(1)<br>• multi-valued dependencies and fourth normal form (1)<br>• Join dependencies and fifth normal form<br>**Transaction Control(11)**<br>•Transaction concepts, properties of transactions( 02)<br>•serializability of transactions, testing for serializability(02)<br>•System recovery, Two- Phase Commit protocol (02)<br>• Recovery and Atomicity, Log-based recovery, concurrent executions of transactions and related problems(03) | 15 |
| 3 | **Interactive SQL Part – I**<br>• Introduction to SQL, Logging into SQL * Plus, Naming Rules and Conventions, Data Types (03) | 15 |

| | | |
|---|---|---|
| | • Creating a Table, Viewing data in the tables, Sorting data in a table, Delete operations, Updating contents of a table, Modifying the structure of tables, Renaming, Truncating and Destroying tables (10)<br>• Examining objects created by a user (01)<br>• Constraints (I/O and Business rule constraints) (04)<br>• DDL, DML, DCL/TCL, DQL(Select Clause) (01)<br>• Computations on table data(Range Searching Pattern Matching) (02)<br>**User Management** : Creating a new user in Oracle, Assigning rights to the user & changing the password of an existing user(01)<br>**Security Management using SQL**<br>Security using Grant and Revoke Statements (02) | |
| 4 | **Interactive SQL Part – II (14 sessions)**<br>• Oracle Built-in Functions (Single row Functions and Group Functions) (03)<br>• Set Operators, Sub query(03)<br>• Group by Clause, Having Clause, Group by using ROLLUP and CUBE operator, EXISTS/ NOT EXISTS operator (03)<br>• Different Types of Joins(02)<br>• Index, View, Sequence(03)<br>• Setting environment using SET command(01)<br>**Advance features in SQL * Plus (02)**<br>• Code a tree structured Query, Code a Matrix Report in SQL , Dump function(02) | 15 |
| Practical content | | |
| List of programs on the above mentioned topics as per decided by subject faculty | | |
| Text Books | | |
| 1 | Database Systems Using ORACLE by Nilesh Shah (Second Edition), Prentice Hall of India SQL, | |
| Reference Books | | |
| 1 | Database System Concepts- Silberschatz, Korth, Sudarshan, Fifth Edition, McGraw Hill | |
| 2 | Introduction to Database Systems by C.J.Date (Eighth Edition) | |
| 3 | PL/SQL The Programming Language of Oracle by Ivan bayross(4 th Edition), BPB Publications | |
| Paper Structure | | |
| | **Q-1 (Attempt any Six Out of Eight : each question must be 5 marks ) --- 30 Questions must be covered from all possible section.**<br><br>**Q-2 (Must be From topics: Database Concepts and Architecture (07marks))**<br>**Q-3 (Must be From topics: Normalization & Transaction Control (07marks))**<br>**Q-4 (Must be From topics: Interactive SQL Part – I (08marks))**<br>**Q-5 (Must be From topics: Interactive SQL Part – II (08marks))** | |

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| Semester | II | Version | 1.0.0.0 |
| Effective from Academic Year | 2018-19 | Effective for the batch Admitted in | June-2018 |
| Subject code | P52A3SC | Subject Name | Security In Computing |

| Teaching scheme | | | | | | Examination scheme (Marks) | | | |
|---|---|---|---|---|---|---|---|---|---|
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 4 | - | - | - | 4 | Theory | 40 | 60 | 100 |
| Hours | 4 | - | - | - | 4 | Practical | - | - | - |

Pre-requisites:

Basic knowledge of the computer security

Learning Outcome:

Knowledge of security problem in computing, encryption mechanism, protection mechanisms and level of security

Theory syllabus

| Unit | Content | Hrs |
|---|---|---|
| 1 | **Security problem in Computing**<br>• Kinds of Security Branches<br>• Computer Criminals<br>• Methods of defense<br>• Cryptography<br>• Symmetric & Asymmetric Encryption<br>• Stream and Block Algorithms | 13 |
| 2 | **Encryption Mechanisms**<br>• Encryption Systems<br>• DES and AES<br>• Public Key Encryption<br>• RSA<br>• Secure Programs<br>• Viruses and other malicious code | 14 |
| 3 | **Protection Mechanisms**<br>• Protection Services<br>• Security Methods of OS<br>• Memory and Address Protection<br>• Models of Security<br>• Assurance Methods | 15 |

| | | |
|---|---|---|
| 4 | **Levels of Security**<br>• Data Base Security<br>• Security versus Precision Proposals<br>• Network Security<br>• IDS Firewalls<br>• Organizational Security Policies | 18 |
| Text Books | | |
| 1 | Computer Security – Art and Science, 2nd Edition, Addison-Wesley Professional, © 2019 Pearson Education, Inc. | |
| 2 | Introduction to Computer Security, Addison Wesley Professional © 2005 | |
| Reference Books | | |
| 1 | Applied cryptography and network security*: Principles and Practice, 5th Edition,* Stallings, Prentice Hall, 2007 | |
| Paper Structure | | |
| | **Q-1 (Attempt any Six Out of Eight: each question must be 5 marks ) --- 30**<br>**Questions must be covered all possible section.**<br>**Q-2 (Must be From topicsSecurity problem in Computing: (8 marks))**<br>**Q-3 (Must be From topics: Encryption Mechanisms (8 marks))**<br>**Q-4 (Must be From topics: Protection Mechanisms (8 marks))**<br>**Q-5 (Must be From topics: Levels of Security(6 marks))** | |

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| Semester | II | Version | 1.0.0.1 |
| Effective from Academic Year | 2018-19 | Effective for the batch Admitted in | June-2018 |
| Subject code | P52A4EBM | Subject Name | Eco Systems and Business Models |

| Teaching scheme | | | | | | Examination scheme (Marks) | | | |
|---|---|---|---|---|---|---|---|---|---|
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 4 | - | - | - | 4 | Theory | 40 | 60 | 100 |
| Hours | 4 | - | - | - | 4 | Practical | - | - | - |

Pre-requisites:

Student has knowledge of basic business style using different type of computer system.

Learning Outcome:

At the end of this paper, students should be able to familiarise with Mobile Application Ecosystem - Prevailing and Emerging Business Models - Problems and Tradeoffs in the various business models - Mobile Application Market Trends

Theory syllabus

| Unit | Content | Hrs |
|---|---|---|
| 1 | **Value Generating Ecosystem**<br>• Ecosystem Models<br>• User Experience<br>• Business Essentials<br>• I-mode | 15 |
| 2 | **Overview of Mobile Market**<br>• Mobile Marketing<br>• Market Players<br>• Mobile Network Operators<br>• Mobile agencies | 15 |
| 3 | **Business Models**<br>• Business Ecosystem<br>• Methodological Approach<br>• Ecosystem Evolution | 15 |
| 4 | **Emerging Radio Networks**<br>• Introduction to Radio Networks<br>• Software Technologies<br>• Hardware Technologies<br>• Terminal Equipments<br>• Device Trends | 15 |

Practical content

| | |
|---|---|
| Text Books | |
| 1 | Ad hoc networking - technology and trends: trend report 2002/2001 by Anne Buttermann, Center for Digital Technology and Management (München), BoD – Books on Demand, 2001 |
| Reference Books | |
| 1 | Analysis of Mobile Marketing and Advertising Sector in Turkey: Professional by AsligulAktas, GRIN Verlag, 2010 |
| Paper Structure | |
| | **Q-1 (Attempt any Six Out of Eight: each question must be 5 marks ) --- 30**<br>**Questions must be covered all possible section.**<br>**Q-2 (Must be From topicsValue Generating Ecosystem: (8 marks))**<br>**Q-3 (Must be From topics: Overview of Mobile Market (8 marks))**<br>**Q-4 (Must be From topics: Business Models(8 marks))**<br>**Q-5 (Must be From topics: Emerging Radio Networks(6 marks))** |

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| Semester | II | Version | 1.0.0.0 |
| Effective from Academic Year | 2018-19 | Effective for the batch Admitted in | June 2018 |
| Subject code | P52A5EL3 | Subject Name | Elective V: IPhone Application Development & Lab – I |

| Teaching scheme | | | | | | Examination scheme (Marks) | | | |
|---|---|---|---|---|---|---|---|---|---|
| (Per week) | Lecture(DT) | | Practical(Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 02 | | 03 | | 05 | Theory | 40 | 60 | 100 |
| Hours | 02 | | 06 | | 08 | Practical | 20 | 30 | 50 |

Pre-requisites:

Student must have knowledge of Programing language like C,VB, C# and concepts of OOPS.

Learning Outcome:

Student can create IPhone based mobile application. Student can also upload their apps on Apple Store.

Theory syllabus

| Unit | Content | Hrs |
|---|---|---|
| | | |
| 1 | **iOS Fundamentals**<br>Introduction to Apple OS family ,Mac versions and features, iOS version and features , Mobile App comparison, iOS architecture and frameworks, Cocoa Vs Cocoa Touch , MVC framework, Understanding the playground, xcode ,simulator and IB interface, NIB file and Storyboard | 05 |
| 2 | **Swift Basics**<br>Introduction to objective-c, H file ,M file, Swift features, Variable, Constant, Swift Data type, Operators, Type safety, Type inference ,Optional type, Optional binding, Collection type and Tuple, Flow control [ if and switch ], Loops [for-in, for , while and repeat-while], Control transfer statements ,Trying out swift in playground | 07 |
| 3 | **Understanding Classes, Objects, Methods**<br>Function, Closures, Enumerations , Structure , Class , Defining instances, Accessing properties, Properties – stored and computed properties, Property observer, Defining instance property, self-property, Inheritance, Sub classing, Dynamic typing, Overriding method and property, Accessing Superclass Methods and Properties, Preventing overriding, initialization and deinitialization | 08 |
| 4 | **Understanding Extensions, Error Handling, ARC**<br>Optional chaining, Type casting, Error handling ,Extensions, Protocols, Access Control, ARC[ Automatic reference connecting] Understand iOS memory management<br>**Introduction to UIKit Framework**<br>Application Component, Design Pattern –MVC,MVP,MVVM,Delegate Pattern ,App Delegate , iOS App life cycle, UI Elements, Connecting View and Controller, Auto Layout , Size class, Stack view, Interface Development | 04 |

| | | |
|---|---|---|
| 5 | **The Mobile App Paradigm**<br>Review of Intro to MVC ,UIView and UIWindow classes , View Hierarchy , Transparency , Memory Management ,Coordinate Space ,Custom Views: Creating a subclass of UIView,MAP View, Camera, Controllers: View Controller Initialization, View Life Cycle, Controllers of Controllers.UIPageView, UITabViewetc<br>**Navigation Views and Handling Gestures**<br>Navigation of Views, Recognizing and Handling Gestures: pinch, pan, zoom, swipe, and tap<br>**Content Display**<br>, UITableView and UITableViewControllerUIImageView, UIWebView, UIScrollView, UICollection view, | 06 |

| | |
|---|---|
| Practical content | |
| List of programs specified by the subject teacher based on above mentioned topics | |
| Text Books | |
| 1 | Beginning IOS Programing with Swift –by AppCoda |
| Reference Books | |
| 1 | Beginning Swift Programming (WROX) by Wei-Meng Lee |
| 2 | The Swift Developer's Cookbook by Packt Publishing Limited |
| 3 | https://www.appcoda.com/learnswift/ |
| | Note for Examiner<br><br>Q-1 must be common from any topics from syllabus.<br><br>Q-2 and onwards must be from specific topics and internal choice or option can be given<br><br>Paper Structure<br><br>Q-1 (Attempt any Six Out of Eight: each question must be 5 marks ) --- 30<br>Questions must be covered all possible section.<br>Q-2 (Must be From topics: Unit 1 & 2(12 marks))<br>Q-3 (Must be From topics: Unit 3 (6marks))<br>Q-4 (Must be From topics:Unit 4 (6 marks))<br>Q-5 (Must be From topics:**Unit 5** (6 marks)) |