Syllabus for

Post Graduate

Diploma in Computer Management

(P.G.D.C.M) Semester System

To be implemented from the Academic Year 2022-2023

Faculty of Commerce & Management

Savitribai Phule Pune University

Post Graduate Diploma in Computer Management

From the Academic Year 2022-2023

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Post Graduate Diploma in Computer Management

From the Academic Year 2022-2023

Duration: 1 Year – Part Time

Total Number of Credits: 32

1. INTRODUCTION:

1. The name of the programme shall be Post Graduate Diploma in Computer Management (PGDCM).

2. The PGDCM Programme will be a part time one year's Diploma course in Computer Management, divided into two semesters. It will consist of 8 papers adding up to 800 marks (including Practicals and Project Work) as detailed later.

3. The objective of the PGDCM programme is to train the students to meet the challenges of the Software Industry and R&D Sector with computational techniques. The curriculum is a mix of computer operations, design and development.

4. It offers 04 Specialization Elective Groups in different functional areas.

- PGDCM with Web Technology
- PGDCM with Digital Marketing
- PGDCM with Data Analysis
- PGDCM with Cloud Computing
- PGDCM with UI/UX Design

2. INTAKE

Ordinarily, in each class, not more than 60 students be admitted.

3. ELIGIBILITY FOR ADMISSION:

A student seeking admission to this course must have passed any one of the following qualifications

1. Bachelor's Degree of any statutory University or any other recognized foreign University.

2. Any Diploma awarded by Board of Technical Education of any state or Central Government

- Post SSC three years Diploma with 1 year post Diploma experience OR

- Post HSC two years Diploma with 1 year post –Diploma experience.

4. NUMBER OF LECTURES AND PRACTICAL:

Lectures and Practical should be conducted as per the scheme of lectures and practicals indicated in the course structure.
10% of the lectures are expected from the Industry experts.

5. PRACTICAL TRAINING AND PROJECT WORK:

As a part of the course, students will have to complete their practical & Project work under guidance of an internal guide.

The project should consist of a practical problem related to an industrial / service organization.

The practical and project work will be assessed by the institution offering the PGDCM Programme internally and the marks allotted for the project should be included in the marks for the paper titled "practicals" during the second semester of the PGDCM programme.

6. ASSESSMENT:

The final total assessment of the candidate is made in terms of an internal assessment and external assessment for each course.

• For each paper, 50% marks will be based on internal assessment and 50% marks will be based on external examination.
• The division of the 50% marks allotted to internal assessment of theory papers is 20 Marks for tutorial work, 20 marks for written internal test and 10 marks for attendance.

Practical and Project
• Practical and Project will be fully be evaluated by the Institute.

• The internal marks will be communicated to the University at the end of each semester, but before the semester examination. These marks will be considered for the declaration of the results

Note:-
(C) - Compulsory subject to be evaluated by the University and the Institute.
(FI) - Fully Internal to be evaluated by the Institute.

7. EXAMINATION:

Examinations shall be conducted at the end of the semester i.e. during November / December and in April/ May.

8. STANDARD OF PASSING:

Every candidate must secure at least Grade D in Concurrent Evaluation as well as University Examination as separate heads of passing for each course. Internal as well as external examination will be held in November and May.
Conversion of Marks to Grade Points & Grades: The marks shall be converted to grade points and grades using Table I below.

9. Table I: Points Grading System

Sr. No.	Marks	Grade	Grade Point
1.	100 – 75	O – Outstanding	10
2.	74 – 65	A – Very Good	09
3.	64 – 55	B – Good	08
4.	54 – 50	C – Average	07
5.	49 – 45	D – Satisfactory	06
6.	44 – 40	E – Pass	05
7.	39 – 0	F – Fail	00

10. REASSESSMENT OF INTERNAL MARKS:

In case of those who have secured less than passing percentage of marks in internal i.e. less than 40%, the institute will administer a separate internal test. The results of which may be conveyed to the University as the Revised Internal Marks.

In case the result of the revised internal test is lower than the original marks then the original marks will prevail. In short, the rule is higher of the two figures should be considered.

However, the institute will not administer any internal test, for any subject for those candidates who have already secured 40% or more marks in the internal examination.

11. BACKLOG:

Candidates can keep terms for any semester of PGDCM, irrespective of the number of subjects in which he/she has failed in the previous PGDCM semester examinations.

12. BOARD OF PAPER SETTERS /EXAMINERS:

For each Semester and examination there will be one board of Paper setters and examiners for every course. While appointing paper setter /examiners, care should be taken to see that there is at least one person specialized in each unit course.

13. CLASS:

The performance of a student will be evaluated in terms of two indices, viz.
a. Semester Grade Point Average (SGPA) which is the Grade Point Average for a semester.
b. Cumulative Grade Point Average (CGPA) which is the Grade Point Average for all the completed semesters at any point in time.
Semester Grade Point Average (SGPA): At the end of each semester, SGPA is calculated as the weighted average of GPI of all courses in the current semester in which the student has passed, the weights being the credit values of respective courses.

SGPA = Grade Points divided by the summation of Credits of all Courses.

$$SGPA = \frac{\sum\{C*GPI\}}{\sum C} \text{ for a semester}$$

Where GPI is the Grade and C is credit for the respective Course.

Cumulative Grade Point Average (CGPA): Cumulative Grade Point Average (CGPA) is the grade point average for all completed semesters. CGPA is calculated as the weighted average of all GPI of all courses in which the student has passed up to the current semester.
Cumulative Grade Point Average (CGPA) for the Entire Course

$$SGPA = \frac{\sum\{C*GPI\}}{\sum C} \text{ for all the semester taken together.}$$

Where GPI is the Grade and C is credit for the respective Course.

> IMPORTANT NOTE:
>
> If a student secures F grade in either or both of Concurrent Evaluation or University
> Evaluation for a particular course his /her credits earned for that course shall be
> ZERO.

14. Award of Grade Cards:

The University of Pune under its seal shall issue to the learners a grade card on completion of each semester. The final Grade Card issued at the end of the final semester shall contain the details of all courses taken during the entire programme for obtaining the degree.

Final Grades:

After calculating the SGPA for an individual semester and the CGPA for entire programme, the value shall be matched with the grade in the Grade Points& Descriptors Table as per the Points Grading System and expressed as a single designated GRADE (as per Table II) such as O, A, B, etc….

15. Table II: Grade Points & Descriptors

Sr. No.	Marks	Grade	Grade Point
1.	100 – 75	O – Outstanding	10
2.	74 – 65	A – Very Good	09
3.	64 – 55	B – Good	08
4.	54 – 50	C – Average	07
5.	49 – 45	D – Satisfactory	06
6.	44 – 40	E – Pass	05
7.	39 – 0	F – Fail	00

16. The description of the final grades shall be as follows:

O: Outstanding (Excellent Analysis of the topic - 75% and above)
Accurate knowledge of the primary material, wide range of reading, logical development of ideas, originality in approaching the subject. Neat and systematic organization of content, elegant and lucid style.
A: Very Good (Excellent Analysis of the topic - 65 to 74 %)
Accurate knowledge of the primary material, acquaintance with seminal publications, logical development of ideas. Neat and systematic organization of content, effective and clear expression.

B : Good (Good Analysis and treatment of the topic - 55 to 64 %) Basic knowledge of the primary material, logical development of ideas. Neat and systematic organization of content, effective and clear expression.

C : Average (Some important points covered – 50 to 54%)
Basic knowledge of the primary material, logical development of ideas. Neat and systematic organization of content, good language or clear expression.

D: Satisfactory (Some points discussed – 45 to 49%)
Basic knowledge of the primary material, some organization of content, acceptable language or expression.

E: Pass (Any two of the above – 40 to 44%)

F: Fail (None of the above – 0 to 39%)

A student who secures grade E or above in a course is said to have completed /earned the credits assigned to the course. A student who completed the minimum credits required for the MCA programme shall be declared to have completed the programme.

17.	NOTE: The Grade Card for the final semester shall indicate the following, amongst other details: a. Grades for concurrent and university evaluation, separately, for all courses offered by the student during the entire programme along with the grade for the total score. b. SGPA for each semester. c. CGPA for final semester. d. Total Marks Scored out of Maximum Marks for the entire programme, with breakup of Marks Scored in Concurrent Evaluation and University Evaluation. e. Marks scored shall not be recorded on the Grade Card for intermediate semesters. f. The grade card shall also show the 10-point scale and the formula to convert GPI, SGPA, and/or CGPA to percent marks.

18. MEDIUM OF INSTRUCTION

The medium of Instruction will be English.

19. CLARIFICATION OF SYLLABUS:

It may be necessary to clarify certain points regarding the course. The syllabus Committee should meet at least once in a year to study and clarify any difficulties from the Institutes.

20. REVISION OF SYLLABUS:

As the computer technology is changing very fast, revision of the syllabus should be considered every 2 years.

21. TEACHING AND PRACTICAL SCHEME:

Total Credits = 32
1 Credit = 15 Lecture Hrs.
100 Marks Subject = 4 Credits

Credit - Each credit is a combination of 2 components viz. Theory and Practicals. One Credit would mean equivalent of 15 sessions of 60 minutes

Session - Each Theory and Practicals session shall be of 60 minutes.

Specializations - The institute shall announce the elective specializations subjects. It is not mandatory to offer all the specializations. The decision of the Director shall be final in this case.

Practicals - The practicals should be based on the subjects covered during the semester. The students are expected to complete a mini project which will give them an understanding of a real life business which will give them an understanding of a real life business situation. Both practical assignments and the mini project should be evaluated internally, based on submission of assignments and a viva-voce examination.

PGDCM – Revised Syllabus Structure
Semester – I

Subject Code	Subject Name	Type	Marks	Sessions	Credits
101	Advanced Office Automation and Programming Concepts	C	100	45	4
102	Introduction to Web Technology (E-commerce, HTML, CSS, CMS)	C	100	45	4
103	Advanced Trends in Information Technology	C	100	45	4
104	Practicals	FI	100	45	4

Semester – II
Select any one specialization -

Specialization Group – I: Web Technology

Subject Code	Subject Name	Type	Marks	Sessions	Credits
201	Web Page Design – (CDR, PS, Flash)	C	100	45	4
202	Web Site Development - I (Java Script, PHP, JQuery)	C	100	45	4
203	Web site Development - II (DBMS, MySQL, CMS-WP)	C	100	45	4
204	Practical, Project	FI	100	45	4

Specialization Group – II: Digital Marketing

Subject Code	Subject Name	Type	Marks	Sessions	Credits
301	Digital Marketing – I (Fundamentals and Online Presence)	C	100	45	4
302	Digital Marketing – II (SEO, SEM)	C	100	45	4
303	Digital Marketing – III (SMM, Email-Mobile-marketing)	C	100	45	4
304	Practical, Project	FI	100	45	4

Specialization Group – III: Data Analysis

Subject Code	Subject Name	Type	Marks	Sessions	Credits
401	Fundamentals of Data Analysis	C	100	45	4
402	Business Statistics	C	100	45	4
403	Python	C	100	45	4
404	Practical, Project	FI	100	45	4

Specialization Group – IV: Cloud Computing

Subject Code	Subject Name	Type	Marks	Sessions	Credits
501	Introduction to Cloud Computing	C	100	45	4
502	Cloud Computing Architecture	C	100	45	4
503	Cloud Infrastructure Management and AWS	C	100	45	4
504	Introduction to Cloud Computing	FI	100	45	4

Specialization Group – V: UI / UX Design

Subject Code	Subject Name	Type	Marks	Sessions	Credits
601	Design thinking	C	100	45	4
602	User Interface Design (Visual designing, Illustrator & Photoshop adobe XD)	C	100	45	4
603	UX Design - User Research Experience	C	100	45	4
604	Case study and Project	FI	100	45	4

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(FI) - Fully Internal to be evaluated by the Institute.

Syllabus - Semester – I

Subject Code	Subject Name	Type	Marks	Sessions	Credits
101	Advanced Office Automation and Programming Concepts	C	100	45	4
102	Introduction to Web Technology (E-commerce, HTML, CSS, CMS)	C	100	45	4
103	Advanced Trends in Information Technology	C	100	45	4
104	Practicals	FI	100	45	4

Subject Code	Subject Title	Marks
101	Advanced Office Automation and Programming Concepts	100

OBJECTIVE:

The student will be able to

- Understand a computer system – Hardware and Software
- Advanced use of file mangers, word processors, spread sheets, presentation software's , programming concepts and Internet.

Sr. No.	Topic Details	Nos. of Session	%
1.	Block Diagram of Computer. Representation of Data : Binary Number System, Hexadecimal Numbers, ASCII Code, Unicode, Multilanguage concepts. Computer Languages : Machine Language, Assembly Language, & High Level Languages, compilers & interpreters, Programming Languages.	01	
2.	Definition, Classification of Hardware, Firmware, & software. Operating System : Functions of Windows Operating System	01	
3.	**Network and Communication fundamental:** Need for networking, concepts, and advantages. Types of networks – LAN, WAN, MAN. Types of networking models, Network Topology, Network Media & Hardware. Network Operating Systems	02	
4.	**Internet Concepts :** Concept of internet, www, ISP - Internet connection, Applications of Internet, Services on the Internet, Browser, Domain Names, Search Engines, Firewall, Cookies, Commonly used & Interesting sites. MS Outlook express, messaging, scheduling, address book	02	
5.	**Software Application for Word Processor**	05	

	1. Create and Manage Documents - Create and Manage Documents, Navigate Through a Document, Format a Document, Customize Options and Views for Documents, Customize Options and Views for Documents, 2. Format Text, Paragraphs, and Sections - Insert Text and Paragraphs, Format Text and Paragraphs, Order and Group Text and Paragraphs. 3. Create Tables and Lists - Create a Table, Modify a Table, Create and Modify a List 4. Create and Manage References - Create and Manage Reference Markers, Create and Manage Reference Markers 5. Insert and Format Graphic Element - Insert Graphic Elements, Insert Graphic Elements, Insert and Format SmartArt Graphics 6. Manage document options and settings - Manage Documents and Templates, Prepare Documents for Review, Manage Document Changes 7. Design advanced documents - Perform Advanced Editing and Formatting, Create Styles 8. Create Advanced References - Create and Manage Indexes, Create and Manage References, Manage Forms, Fields, and Mail Merge Operations		
6.	**Software Application for Spread Sheets -** 1. Manage Workbook Options and Settings - Create Worksheets and Workbooks, Navigate in Worksheets and Workbooks, Format Worksheets and Workbooks , Customize Options and Views for Worksheets and Workbooks, Configure Worksheets and Workbooks for Distribution 2. Apply Custom Data Formats and Layouts - Apply Custom Data Formats and Validation, Apply Advanced Conditional Formatting and Filtering, Create and Modify Custom Workbook Elemen 3. Create Tables - Create and Manage Tables, Manage Table Styles and Options, Filter and Sort a Table. 4. Perform Operations with Formulas and Functions - Summarize Data by using Functions, Perform Conditional Operations by using Functions, Format and Modify Text by using Functions 5. Create Charts and Objects - Create Charts, Format Charts, Insert and Format Objects 6. Manage Workbook Options and Settings - Manage Workbooks, Manage Workbook Review Restrict editing 7. Apply Custom Data Formats and Layouts - Apply Custom Data Formats and Validation, Apply Advanced Conditional Formatting and Filtering, Create and Modify Custom Workbook Elements, Prepare a Workbook for Internationalization 8. Create Advanced Formulas - Apply Functions in Formulas, Perform logical operations by using AND, OR, and NOT functions, Perform logical operations by using nested functions, Perform statistical operations by using SUMIFS, AVERAGEIFS, and COUNTIFS functions 9. Look up data by using VLOOKUP, HLOOKUP function 10. Apply Advanced Date and Time Functions 11. Perform Data Analysis and Business Intelligence, transform, combine, display, and connect to data, Consolidate data, Perform what-if analysis by using Goal Seek and Scenario Manager, Calculate data by using financial functions 12. Troubleshoot Formulas - Trace precedence and dependence, Monitor cells and formulas by using the Watch Window 13. Define Named Ranges and Objects - Name cells, Name data ranges, Name tables, Manage named ranges and objects 14. Create Advanced Charts and Tables - Create and Manage PivotTables, Create and Manage Pivot Charts	12	
7.	**Software Application for Presentation -**	02	

	Creating a presentation, using auto content wizard, using template. Working with five views. Creating & editing slides. Entering / pasting / selecting / formatting text, promoting & demoting paragraphs, changing layout of a slide, previewing slide show. Inserting graph / chart / picture / Organizational chart in presentation, drawing objects, auto shapes, working with borders, files, shadows, video and audio with editing, etc. Setting preset / custom animation, assigning transitions and timings, creating builds, slides, setting up slide show. Views in PowerPoint			
8.	**Software Application for Database Management -** Access Basics, Design a Database, Build a Database, Data types, Calculations using formulas, Work with Forms using wizards, designs Work With Reports, Access with Other Applications, Manage an Access Database. Create relationship with tables, Run query, create form, generate a report using relationship tables.	08	
9.	**Introduction to Programming –** C Programming Fundamentals Variables, Data Types, Operator & Expression, Character Set, C Token, Identifier & Keyword, Constant, Integer, Floating Point, Character, String, Enumeration, Data Types in C, Data Declaration & Definition, Operator & Expression-Arithmetic, Relational, Logical, Increment & Decrement, Bitwise, Assignment, Conditional, Precedence & Associativity of Operators.	08	
10.	**Object Oriented Programming** Principle of OOP's 1.1 Introduction 1.2 Procedural Vs Object Oriented Programming 1.3 Classes, Object, Data Abstraction, 1.4 Encapsulation, Inheritance, Polymorphism 1.5 Dynamic Binding, Message Passing 1.6 Object Oriented Languages, Object Based languages	04	

Reference Books
1. Fundamentals of Computers   V.Rajaraman
2. Peter Norton's Introduction to Computers   Peter Norton
3. Computer Network Andrew   S Tanenbaum
4. Computer Networks and Distributed Processing   James Martin
5. Computer Studies   C S French
6. Manual for Ms Office
7. Fundamentals of Digital Computer   Thomas Bartee
8. Operating System   Milan Milenkovic
9. C++: The Complete Reference   Herbert Schildt
10. Let us C++   Kanetkar
11. Object Oriented Programming with C++ E.   Balagurusamy
12. C++ Programming Bible   Stevens & Clayton Walnum

Self-learning / Reference links - (Suggested not restricted)
1. https://cloud.google.com/certification/workspace
2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/
5. https://www.coursera.org/

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://cloud.google.com/certification/workspace
2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/
5. https://www.coursera.org/

Subject Code	Subject Title	Marks
102	Introduction to Web Technology (E-commerce, HTML, CSS, CMS)	100

OBJECTIVE:
The student will be able to
- Design and create web pages
- Create simple web site, its hosting and maintenance

Sr. No.	Topic Details	Nos. of Session	%
1.	**Internet and web terms** - Internet Connection Methods, Internet Service Provider (ISP), Internet-Based Services, Internet Communication, Search Engine WWW, HTTP, HTTPS, URL, Protocol, Domain Name System, Directory/Page, Common Top-Level Domains Website - Website Type, Static and Dynamic Web Sites, Webpage, Homepage , Web Server, Web Browser, Web server types HTML, Hyperlink, Web hosting, different platforms, Domain registration, Buying an URL, Uploading the Site, Modifying the Site User-friendly Site, Search Engine Visibility		
2.	**E-commerce** 1.1 What is Electronic Commerce? 1.2 Benefits of electronic commerce 1.3 How E-commerce works? 1.4 Web Hosting, Obtaining a Digital Certificate 1.5 Handling Money on the net, Transaction on the Internet, Requirements of Payments, Procedure followed by cyber cash, VeriFone & First Virtual	05	10
1.	**HTML - Hyper Text Markup Language** Write HTML document, Using notepad/ sublime/ bracket HTML structure / basic template with basic tags HTML Element, HTML Attributes, HTML Syntax HTML Tags – header tags, paragraph, font, background colour, background image, ordered & unordered list, image source, table, link, hyperlink, section, div, form and frameset. HTML Layout of Web page using tags, HTML animated graphics, HTML Image Maps, Audio and Video Practical – Creating of websites on different topics	15	50
2.	**Advanced HTML5 –** HTML 5 Tags, HTML Responsive, HTML Entities, HTML5 Canvas	10	10
3.	**CSS- Cascading Style Sheet** CSS Introduction CSS Syntax CSS Text, CSS Backgrounds CSS Fonts, CSS Links CSS Lists, CSS Tables CSS Box Model CSS Margins, Dimensions, Display CSS Navigation Bar, CSS Attribute Selectors CSS Rounded Corners, CSS Border Images	15	30

	CSS Backgrounds, CSS Colours CSS Animations		

Reference Books
1. The E-Business   Daniel Amor
2. E-Commerce   S.Jaiswal
3. The Complete Reference HTML   Thomas A. Powell
4. HTML & CSS: Design and Build Websites   Jon Duckett

Self-learning / Reference links - (Suggested not restricted)
1. https://cloud.google.com/certification/workspace
2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/
5. https://www.coursera.org/

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://cloud.google.com/certification/workspace
2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/
5. https://www.coursera.org/

Subject Code	Subject Title	Marks
103	Advanced Trends in Information Technology	100

OBJECTIVE:
- The motive behind keeping this subject is to make students aware of current/upcoming trends in Information Technology.
- Full autonomy is given to the Institute to plan and execute this subjects.

Sr. No.	Topic Details	Nos. of Session	%
1.	**Introduction to Cloud Computing and Applications** Fundamentals of Cloud Computing: Overview of Cloud Computing. History of Cloud Computing. Cloud Computing Model. Cloud Stakeholders - Cloud providers, Cloud Users & End Users. Characteristics of Cloud Computing. Benefits and Limitations. Challenge and Applications of Cloud Computing. Cloud Computing vs. Cluster Computing V/S. Grid Computing		30
2.	**Introduction to IOT and Applications** Concept of IoT, Smart Homes and Appliances, Smart Cities, Smart Cars, Wearable Computing and Smart Gadgets. Introduction to Industrial Internet of Things (IIoT) and Internet of Services		20
3.	**Introduction to Artificial Intelligence and Applications** Role of AI in daily life applications The History of AI What is Intelligence and Artificial Intelligence Different task domains of AI Programming methods Limitations of AI What is Intelligent Agents Applications of AI: Natural Language Processing (NLP)		10
4.	**Introduction to Machine Learning and Applications** History and Evolution, Machine Learning categories: Supervised, Unsupervised and Reinforcement learning. Framework for building ML Systems		10
5.	Introduction to Augmented Reality, Virtual Reality and AR-VR Applications		10
6.	Introduction to Geo Information System (GIS) and Applications		10
7.	Introduction to Cryptocurrency		10

Note: Institute should arrange expert guest sessions for the above subject. The theory examination part should be on introductory theory on the topics mentioned. No practical examination for the subject ATIT.

Reference Books
1. Industry 4.0: The Industrial Internet of Things   Alasdair Gilchrist
2. Cloud Computing Bible   Barrie Sosinsky, Wiley
3. Artificial Intelligence   Elaine Rich, Kevin Knight, S.B. Nair, Tata McGraw
4. Machine Learning by Anuradha Srinivasaraghavan and   Vincy Joseph
5. Machine Learning   Tom Mitchell

Subject Code	Subject Title	Marks
104	Practicals	100

The praticals should be based on the subject covered during the Semester.
This should be evaluated based on submission of assignment and viva-voce examination.

Syllabus - Semester – II

Specialization Group – I: Web Technology

Subject Code	Subject Name	Type	Marks	Sessions	Credits
201	Web Page Design – (CDR, PS, Flash)	C	100	45	4
202	Web Site Development - I (Java Script, PHP, JQuery)	C	100	45	4
203	Web site Development - II (DBMS, MySQL, CMS-WP)	C	100	45	4
204	Practicals, Case study and Project	FI	100	45	4

Subject Code	Subject Title	Marks
201	Web Page Design – (CDR, PS, Flash)	100

OBJECTIVE:

The student will be able to
- Create graphics, page designs, logo designs for web page
- Animate small objects for web site

Sr. No.	Topic Details	Nos. of Session	%
1.	**Graphic Design** Introduction to Graphic Design Role of Graphic Design in Society, Impact/function of Design, Indigenous Design Practices Graphic Communication Techniques Applications of Graphic Design Principles of Design Principles of Layout, Logo Design	05	10
2.	**Corel Draw** Basics of Vector , Difference between bitmap and vector based image Page Properties Drawing objects using tools in toolbox Object properties Shape Tool Fill effects Typing text (Artistic/paragraph) Effects of vector Import and Export Files	15	40

3.	**Photoshop** Basics of rasters Basic selection tools About layers Tools of Painting Image Correction Advanced selection and drawing tools Type text in Photoshop Layer Styles Image Adjustment Image Editing Special Fx and File formats	15	30
4.	**Flash** Use of animation in Web designing Basics of Flash - Stage, toolbars, timeline, panels, layers, frame, movie properties, source. What is .fla files and .swf files? Importing and exporting files. Adjusting bitmaps properties, converting bitmap to vector. Using library managing instances, components of animation Types of Frame, frame by frame motion Symbols & Tween Masking and other effect	05	20
5.	**HTML – Revise**	05	00

Reference Books
1. CorelDRAW 2019 & CorelDRAW Home and Student 2019   Peter Schiessl
2. Corel Draw Training Guide   Satish Jain and M. Geetha
3. Coreldraw! for Dummies (For Dummies Computer Book Series) Deke McClelland
4. Adobe Photoshop CC For Dummies   Peter Bauer
5. Beginning Adobe Animate CC   Tom Green and Joseph
6. Adobe Flash/Animate CC Keyboard Shortcuts   U. C-Abel Books

Self-learning / Reference links - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coreldraw.com/en/learn/tutorials/
3. https://helpx.adobe.com/in/photoshop/tutorials.html

Certifications guidelines / Online certifications - (Suggested not restricted)
6. https://www.corelindia.co.in/corel_training_partner
7. https://www.udemy.com/
8. https://www.coreldraw.com/
9. https://certifiedprofessional.adobe.com/photoshop
10. https://www.udemy.com/course/certified-expert-in-photoshop-exam/
11. https://certifiedprofessional.adobe.com/animate

Subject Code	Subject Title	Marks
202	Web Site Development - I (Java Script, PHP, JQuery)	100

OBJECTIVE:
The student will be able to
- Add interactivity to the website
- Write server-side scripting

Sr. No.	Topic Details	Nos. of Session	%
1.	**JAVA Script** Introduction of Java Script with Various data types and operators Language Syntax Variable declaration, Operators, Control Statements, Error Handling, Understanding arrays, Function Declaration Functions in JavaScript - Built In Functions, Standard Date and Time Functions, If – Else () statement, Switch –case statement, Loops in JavaScript HTML Forms, Properties in JavaScript, HTML form validation HTML Document object Model Working with HTML form and its elements Working with Objects and Classes Working with Objects, Call method in JavaScript Inheritance in JavaScript using prototype	14	32
2.	**PHP** Introduction to PHP, Evaluation of PHP Basic Syntax, Defining variable and constant PHP Data type, Operator and Expression Handling Html Form with PHP, Capturing Form Data Dealing with Multi-value filed, Generating File uploaded form Redirecting a form after submission, Decisions and loop, Making Decisions, Doing Repetitive task with looping, Mixing Decisions and looping with Html Function, Define a Function, Call by value and Call by reference Recursive function String, Creating and accessing String Searching & Replacing String Formatting String, String Related Library function Array - Anatomy of an Array, Creating index based and Associative array Accessing array Element, Looping with associative array using each () and foreach () ,Some useful Library function Working with file and Directories - Understanding file& directory Opening and closing a file, Coping, renaming and deleting a file working with directories, Building a text editor, File Uploading & Downloading Database Connectivity with MySQL	12	28
3.	**JQuery** Overview, Downloading and installing jQuery, Creating a simple jQuery enabled page, Overview of jQuery's features, Retrieving Page Content, Using basic jQuery selectors, Using basic jQuery filters, Using jQuery attribute filters, Child, visibility, and content filters,	08	20

	Form selectors and filters, Traversing documents, Understanding jQuery statement chaining, Manipulating Page Content, Creating, getting, and setting content, Manipulating attributes, Inserting content Wrapping, replacing, and removing content ,Working with CSS, Working with Events, Understanding the jQuery event handling features, Binding and unbinding events, Convenient event helper methods, Using the jQuery event object, JQuery Animations and Effects, Hiding and showing elements, Fading elements in and out , Sliding elements, Creating custom animations, Using the jQuery UI Plug in Exploring the jQuery UI widgets, Exploring the jQuery UI effects , Using the jQuery UI Theme Roller, Downloading and installing jQuery UI, Putting it all together. Overview of the sample web site, Using the accordion widget , Creating an image rotator, Building hover tooltips, Making an image selector, Using the Resizable effect		
4.	**Bootstrap** Introduction of Bootstrap, Bootstrap Framework, Why Bootstrap, History of Bootstrap Advantages of Bootstrap Framework, Responsive web page, How to remove Responsiveness Major Features of Bootstrap Mobile-First Strategy, Setting up Environment, Applying Bootstrap to Applications, Bootstrap Component Tags and Classes for image, Table, Text, Background, etc., Bootstrap Button, List and Image, Bootstrap Dropdown, Panel, Bootstrap Forms and Navigation bar	05	12
5.	**SEO** – SEO with Google Analysis parameters	02	08
6.	Introduction to AngularJS and MVC architecture	04	00

Reference Books

1. JavaScript and jQuery Interactive Front-End Web Development   Jon Duckett
2. Professional JavaScript for Web Developers   Matt Frisbie
3. Coding with Javascript for Dummies   Chris Minnick
4. PHP, MySQL & JavaScript All - in - One For Dummies   Richard Blum
5. PHP: The Complete Reference   Steven Holzner
6. Javascript: the Complete Reference by   Powell, Schneider
7. JavaScript The Complete Reference 3rd Edition (Paperback,   Powell Thomas
8. jQuery Reference Guide by   Chaffer Jonathan
9. Complete Ref. PHP
10. JavaScript The Complete Reference 3rd Edition   Powell Thomas
11. Learning jQuery -   Chaffer, Karl
12. Head First PHP & MySQL –   Lynn & Morrison
13. The Joy of PHP Programming: A Beginner's Guide – y   Alan Forbes

Self-learning / Reference links - (Suggested not restricted)
1. https://swayam.gov.in/
2. https://www.udemy.com/
3. https://www.simplilearn.com/

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://swayam.gov.in/
2. https://www.udemy.com/
3. https://www.simplilearn.com/

Subject Code	Subject Title	Marks
203	Web site Development - II (DBMS, MySQL, CMS-WP)	100

OBJECTIVE:
The student will be able to
- Understand a Database management system
- Use Database while dealing with website information.
- Create WordPress web site

Sr. No.	Topic Details	Nos. of Session	%
1.	**Introduction** 1.1 History –advantages and limitations of DBMS, Uses of DBMS 1.2 Software modules in DBMS, architecture of DBMS	02	05
2.	**Modelling Techniques** 2.1 Different types of models , ER model	02	08
3.	**Introduction to Hierarchical and Network databases**	01	05
4.	**Relational Database** 4.1 Introduction Codd's 12 rules, concepts of domain, tuple, cardinality	02	10
5.	**Normalization** 5.1 Advantages & disadvantages of Normalization 5.2 1NF,2NF,3NF, rules with examples 5.3 Anomalies	04	10
6.	**Database - MySQL** Introduction to MYSQL, SQL Language Working with MYSQL Admin Working with PHP My Admin Types Data Type, Creating Database & Tables, Dropping Database & Tables, Adding Fields, Selecting Table, Alerting Fields Properties, MySQL Function in PHP, Database Connections, Managing Database Connections, Performing Queries, Closing Connection, SQL Queries, Create Database & Table, Drop Database & Table, Insert Record , Select Record, Deleting Record, Modifying Record, WHERE Clause, Using Operators , Sorting Records , Eliminating Duplicates, Grouping Records, Having Clause, Joining Tables, Sub queries, Using Table and Column Aliases	20	40
7.	**Content Management System (CMS)** – Introduction to CMS, Installing and creating web site using WordPress, WordPress dashboard, themes, templets, Creating pages, posts, working with images, videos. Working with plugins.	14	22

Reference Books
1. Introduction to Database Systems   C.J.Date
2. Database System Concept   Korth
3. Principles of Database Management   James Martin
4. Computer Database Organization   James Martin
5. Database Management Systems   Bipin Desai

6. Database Management Systems   Ramakrishnan & Gehrke
7. Fundamentals of Database Systems   Elmasri Navathe
8. WordPress All-in-One For Dummies   Lisa Sabin-Wilson

Self-learning / Reference links - (Suggested not restricted)
1. https://swayam.gov.in/
2. https://www.udemy.com/
3. https://www.simplilearn.com/

Certifications guidelines / Online certifications - (Suggested not restricted)
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3. https://www.simplilearn.com/

Subject Code	Subject Title	Marks
204	Practicals, Case study and Project	100

The praticals should be based on the subject covered during the Semester.
This should be evaluated based on submission of assignment and viva-voce examination.
Project – Students will develop a complete website

Syllabus – Semester – II

Specialization Group – II: Digital Marketing

Subject Code	Subject Name	Type	Marks	Sessions	Credits
301	Digital Marketing – I (Fundamentals and Online Presence)	C	100	45	4
302	Digital Marketing – II (SEO, SEM)	C	100	45	4
303	Digital Marketing – III (SMM, Email-Mobile-marketing)	C	100	45	4
304	Case study and Project	FI	100	45	4

Subject Code	Subject Title	Marks
301	Digital Marketing – I (Fundamentals and Online Presence)	100

OBJECTIVE:

The student will be able to
- Design digital media campaign
- Create appropriate content

Sr. No.	Topic Details	Nos. of Session	%
1.	Digital Marketing and its Role in Global Context: 1.1 Concept, Role and Importance of Digital Marketing, Digital Marketing Vs. Traditional Marketing, Digital Marketing Process, Physical marketing, Omni channel marketing, E-commerce & new trends in current scenario of the world. 1.2 Digital Marketing Environment, Digital Micro Environment, Understanding micro marketing elements in the digital marketing context 1.3 Digital Macro environment in India, PESTAL Analysis, National factors, global factors, role of cyber policy and digital commerce policy, Global Perspective of Digital Marketing	05	15
2.	Importance of Digital Marketing: Difference between Traditional Marketing and Digital Marketing Understand the journey of Buyer Why a Business needs a Digital Marketing?	02	10
3.	Search Engines:What do you know about Google? Google Amazing facts, Google Search Parameters Types of Search Engine, Understanding Google SERP	03	10

	Google Crawler Functionality, Google Indexing, Google Ranking Processing, Google Ranking Factors, Google Algorithms		
4.	Internet and Domain registration: Hosting Server, Buying Domain and Hosting, Website / Portfolio / Blog / Ecommerce website difference. WordPress - Content Management System, Wix, Setting up website / blog, Important plugins	05	10
5.	Digital Marketing Planning and Structure: Inbound vs Outbound Marketing, Content Marketing, Understanding Traffic, Understanding Leads, Strategic Flow for Marketing Activities. WWW, Domains, Buying a Domain, Website Language & Technology, Core Objective of Website and Flow, One Page Website, Strategic Design of Home Page, Strategic Design of Products & Services Page, Strategic Design of Pricing Page, Portfolio, Gallery and Contact Us Page, Call to Action (Real Engagement Happens), Designing Other Pages, SEO Overview, Google Analytics Tracking Code, Website Auditing, Designing WordPress Website.	10	25
6.	Applying Segmentation, Targeting and Positioning to Digital Marketing: Segmentation: Concept, Need & Benefits, Criteria for segmenting Digital Audience - Geographic, Demographic, Psychographic, Behavioural segmentation. Targeting Online Customers – Business, Government and Customer Markets. Product Positioning, Sectoral perspective in digital marketing applications with the help of case studies. Overview of Marketing Mix in digital marketing context.	10	20
7.	Introduction to Graphic design creation-editing tools and Audio-Video creation, editing tools.	10	10

Reference Books
6. Internet Marketing   Dave Chaffey
7. Digital Marketing   Oliver J Rich.
8. Digital Marketing   Prof. Seema Gupta
9. E- Marketing   Judy Strauss, Adel Ansary, Raymond Frost

Extra Reading
1. …..

Self-learning / Reference links - (Suggested not restricted)
4. https://learndigital.withgoogle.com/digitalunlocked
5. https://www.ankuraggarwal.in/
6. https://dsim.in/knowledgebase/#video-tutorials
7. https://www.expertinstitute.in/digital-marketing-course.html
8. https://alison.com/courses/digital-marketing
9. https://www.wordstream.com/

Certifications guidelines / Online certifications - (Suggested not restricted)
12. https://learndigital.withgoogle.com/digitalunlocked
13. https://swayam.gov.in/
14. https://www.udemy.com/
15. https://www.simplilearn.com/advanced-digital-marketing-certification
16. https://learndigital.withgoogle.com/digitalgarage/course/digital-marketing

Subject Code	Subject Title	Marks
302	Digital Marketing – II (SEO, SEM)	100

OBJECTIVE:

The student will be able to

- Use Google Ad words for carrying out digital marketing of real life products.
- Design digital media campaign using appropriate mix
- Use various tools of digital marketing.

Sr. No.	Topic Details	Nos. of Session	%
1.	Search Engine Optimization (SEO) Introduction & Clearing Myths about SEO SEO Audit & Website Health Check Up Black Hat and White Hat and Gray Hat SEO	04	10
2.	Search Engine Optimization (SEO) Tools and Techniques: 1.1 Introduction to SEO concept and role in digital marketing: Understanding Search Engine Optimization: Search Engine Optimization (SEO), Features of SEO, Significance of SEO. 1.2 Model used in Digital Marketing, The Five Stage AACRO POEM model, Inverted Pyramid in SEO , Content Drilldown, E3model, Understanding Web and Mobile Marketing perspective. 1.3 Key SEO tools, Application and Functions Google Domain, Google my business, Google Search Console, Google Trends, Google Tag manager, SEM Rush, Domain Authority Score, Inbound Marketing. 1.4 Overview of Inbound Marketing: Essentials of an Effective Inbound Strategy, Optimizing Your Website for Search Engines, Convert Visitors in Leads, Creating Content with a Purpose, Lead & its generation online, Relevant Lead and Converting Visitors into Lead, Converting Leads into Sales.	08	20
3.	On Page SEO - Keyword Research, Website Content,URL, Directory Structure, Image Optimization, Link Optimization, Navigation, Footer, Menu Structure, Heading, 301 Redirect, 302 Redirect, 404 Error Handling, Website Structure, Robots.txt, Website Usability / Accessibility. Off Page SEO – About Off page? Importance of Link Building, PageRank Algorithm, No Follow / Do Follow Links, Backlink Tools, Submission and Tracking, Link Building, Strategy & Best Off Page practice, Link Building Techniques.	05	10
4.	Google Adwords : Understanding Adwords, Google Ad Types, Pricing Models, PPC Cost Formula, Ad Page Rank, Billing and Payments, Adwords User Interface, Keyword Planning, Keywords Control, Creating Ad Campaigns, Creating Text Ads, Creating Ad Groups, Bidding Strategy for CPC, Case Studies. PPC, CPM, CPA , Other Measuring	15	30

	Tools, Bidding Strategy on Location, Bidding Strategy on Schedule, Bidding Strategy on Devices, Conversion Tracking Code, Designing Image Ads, Creating Animated Ads, Examples on Animated Ads, Creating Video Ads, Youtube Video Promotion, Hi-Jack Competitor's Video Audience, Case Studies. Remarketing Strategies, Remarketing Rules, Remarketing Tracking Code, Linking Google Analytics, Designing Remarketing Images, Shared Budget, GWD Software, Case Studies		
5.	Search Engine Marketing (SEM) Tools: 3.1 Search Engine Marketing (SEM), Comparison between SEO and SEM, SMM and Keywords, Terminologies associated to SEM, Pay Per Click (PPC), Cost per Click (CPC), Search Engine Results Page (SERP), Click-Through Rate (CTR), Impressions, Google Display Network (GDN).Understanding Web and Mobile Marketing perspective. 3.2 Key SEM tools, Applications and functions, Google Ads, Google Analytics, Google Admob, Google Adsense, Google Marketing Platform, Google Shopping Campaign, Word stream advisor. 3.3 The Fundamentals of Blogging, Amplifying Your Content with Social Media, Enticing Clicks with Calls-to-Action, the Anatomy of a Landing Page, Optimization Thank You Page, Sending the Right Email to the Right Person, Hob Spot Inbound Marketing Certification. 3.4 Understanding the concept of Website Analytics, Different types of Web Analytics, Social Web Analytics, Mobile Web Analytics, Conversion Web Analytics, Key Performance Indicators, Google Analytic, Benefits of using Google Analytics, Clicky vs. Google Analytics, Website Traffic Measurement Metrics.	10	20
6.	Online Earning Ways – Freelancing, Affiliate Marketing, Influencer marketing, You Tuber	03	10

Reference Books
1. Google Adwords for Beginners
2. A Do-It-Yourself Guide to PPC Advertising   Cory Rabazinsky.I
3. Internet Marketing   Dave Chaffey
4. Digital Marketing   Oliver J Rich.
5. Digital Marketing   Prof. Seema Gupta
6. E- Marketing   Judy Strauss, Adel Ansary, Raymond Frost

Self-learning / Reference links - (Suggested not restricted)
1. https://learndigital.withgoogle.com/digitalunlocked
2. https://www.ankuraggarwal.in/
3. https://dsim.in/knowledgebase/#video-tutorials
4. https://www.expertinstitute.in/digital-marketing-course.html
5. https://alison.com/courses/digital-marketing
6. https://www.wordstream.com/

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17. https://learndigital.withgoogle.com/digitalunlocked
18. https://swayam.gov.in/
19. https://www.udemy.com/
20. https://www.simplilearn.com/advanced-digital-marketing-certification
21. https://learndigital.withgoogle.com/digitalgarage/course/digital-marketing

Subject Code	Subject Title	Marks
303	Digital Marketing – III (SMM, Email-Mobile-marketing)	100

OBJECTIVE:

The student will be able to

- Plan appropriate digital marketing campaign on social media.
- Use Facebook, other social media, YouTube and Email for carrying out digital marketing of real life products.
- Make use of appropriate mix of Social media,
- Create appropriate content

Sr. No.	Topic Details	Nos. of Session	%
1.	**Social Media Marketing** (SMM), B to C Perspective, B to B Perspective. Introduction to Social Media, Advantages Over Online Marketing, Social Media Strategy. Understanding Web and Mobile Marketing perspective.	05	10
2.	**2.1 Facebook Marketing:** Understanding of Facebook Marketing, Types of Facebook Advertising, Creating first ad on Facebook, Setting Campaign and optimization, Facebook Power Editor, Facebook Video Marketing, Facebook App & Shopping Marketing, Facebook ad library, Traffic and Leads Generation. **2.2 Facebook Marketing Fundamentals :** Profiles and Pages, Business Categories, Getting Assets Ready, Creating Facebook Pages, Page Info and Settings, Facebook Page Custom URL, Invite Page Likes, Featured Video, Pin Post and Highlights, Scheduling Posts, Facebook Events, Reply and Message, Facebook Insights Reports, Competitor's Facebook Page, Ban User on Facebook Page, Connect with Twitter. **2.3 Facebook Ad Campaigns:** Organic v/s Paid, Defining Ad Objective, Performance Matrix, Ad Components, Designing Creative Image, Facebook Ad Structure, Setting Up Facebook Ad Account, Create Ad –Targeting, Create Ad –Budgeting, Create Ad – Creative, Content and CTA, Boosting Page Posts, Page Promotion, Video Promotion, Similar Ads and Audiences, Tracking Pixels Code, Remarketing -Website Visitors, Custom Audiences - Look Alike, Custom Audience -Saved Group, Managing and Editing Ads, Ad Reports and Ad Insights, Billing and Account. Facebook Business Manager, People, Pages and Roles, Ad Accounts Configurations, Ad Agencies and Assigning, Shared Login for FB Business A/c, Power Editor, Email Targeting on Facebook, Facebook Offers, CTA on Page, Posts for Location, Save Time with Third Party Tools, Case Studies.	10	25
3.	**Twitter Advertising:** Twitter Advertising, Types of Twitter Advertising, Creating first ad on Twitter Setting Campaign and optimization, Create conversion code, Twitter App Advertising, Twitter Video Advertising Leads & Traffic Advertising Increase	05	10

	followers, Twitter Marketing, Strategy and Planning, Tracking and Conversion.		
4.	**Introduction Youtube Marketing:** YouTube Marketing Strategy, Find Video Ideas with Competitor Analysis, Find Video Ideas with Keyword Research, Find Video Ideas with Keyword Research, YouTube Account Setup (Create business account with personal account), YouTube Account Optimization, YouTube Banner, YouTube Channel Tags , YouTube SEO, Enable Custom Thumbnails, Manage Multiple YouTube Accounts, YouTube Monetization, YouTube Ads, YouTube Analytics.	05	15
5.	**YouTube Marketing/Optimization:** Video Flow, Google Pages for YouTube Channel, Verify Channel, Webmaster Tool –Adding Asset, Associated Website Linking, Custom Channel URL, Channel ART, Channel Links, Channel Keywords, Branding Watermark, Featured Contents on Channel, Channel Main Trailer, Uploading Videos, Uploading Defaults, Creator Library, Case Studies. Channel Navigation, Video Thumbnail, CTA –Annotation, CTA –Extro, CTA –Cards for Mobile, Redirect Traffic to Website, Post Upload Enhancements, Live Broadcasting, Managing Playlists, Managing Comments, Managing Messages, Monetization with Adsense, Paid Youtube Channel, Channel Analytics, Real Time Analytics, Case Studies.	05	10
6.	**Pinterest Marketing:** Why market your business on Pinterest, Pinterest account setting, Pinterest account to follow, Pinterest account optimization, account verification, Pinterest board, Pinterest follower, Pinterest graphics, Pinterest chrome extension.	02	05
7.	**Instagram Marketing:** Instagram Business Account Setup, Follow These Instagram Accounts, Instagram Profile Image, Instagram Bio, Instagram Content Creation, Instagram Reposting, Instagram Followers Hack , Instagram Hashtags, Instagram Stories, Instagram Spam (reduce spam), Instagram Analytics.	03	05
8.	**LinkedIn Advertising:** What is LinkedIn advertising? Creating first ad on LinkedIn, Setting Campaign and optimization, Create conversion code, Types LinkedIn Advertising, LinkedIn New feed Advertising, LinkedIn Message Advertising, Traffic and Leads Generation, Billing and Report.	05	10
9.	**Email Marketing:** Content Writing: Email Machine –The Strategy, Email Frequency, Why People Don't Buy, The Fuel –Value, Triggers in Email using 4Ps, Sequence of Email Triggers, Email Example - Topic, Intro, Product, Secondary Value, Fear, Regret, Ask for Sales, Reinforcement, Offers Announcements, Urgency, Cross Sales, Re-Engagement, Buyer vs Consumer. Email Software and Tools, Importing Email Lists, Planning Email Campaign, Email Templates and Designs, Sending HTML Email Campaigns, Web Forms Lead Importing, Integrating Landing Page Forms, Campaign Reports and Insights, Segmentation Strategy, Segmentation Lists, Auto-Responder Series, Triggering Auto –Responder Emails, Auto Responder Actions, Case Studies.	05	10

Reference Books
1. Digital Marketing   Prof. Seema Gupta
2. E- Marketing   Judy Strauss, Adel Ansary, Raymond Frost
3. Online Marketing   Gerry T. Warner and Joe Wilson Schaefer.
4. Social Media Marketing All-In-One for Dummies, Jan Zimmerman and Deborah.
5. Email Persuasion   Ian Brodie

Self-learning / Reference links - (Suggested not restricted)
1. https://learndigital.withgoogle.com/digitalunlocked
2. https://www.ankuraggarwal.in/
3. https://dsim.in/knowledgebase/#video-tutorials
4. https://www.expertinstitute.in/digital-marketing-course.html
5. https://alison.com/courses/digital-marketing
6. https://www.wordstream.com/

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2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/advanced-digital-marketing-certification
5. https://learndigital.withgoogle.com/digitalgarage/course/digital-marketing

Subject Code	Subject Title	Marks
304	Practicals, Case study and Project	100
1.	List of Practicals 1. Establish Your Presence a. Facebook b. Instagram c. WhatsApp d. Twitter e. LinkedIn f. YouTube – Create Social Media Presence on the following platforms 2. Establish Your Presence for Businesses – Create Social Media Business Accounts and Pages 3. Introduction to Business Description, SMART Goal, KPI's – Create Business Description, Goals and Strategies with SMART Goal Planner and define three Key Performance Indicators (KPI's). Specific – What needs to be done? Measurable – Can it be measured? Achievable – Can it be done? Relevant – Should it be done? Time-Bound – When will it be done? 4. Introduction to SWOT analysis of business, Media and promotion plan – Create Social Media Marketing plan with 1-month Content Calendar 5. Social Media Content Management – Create Social Media Marketing Designs as per Content Calendar 6. Social Media Posting – Create Social Media Posting about your college as per Content Calendar 7. Social Media Tools – Create Social Media Posts using Tools as per Content Calendar 8. WordPress blog creation – Create WordPress Blog for your Business OR Full Website using WordPress of your own 9. Email Marketing Campaign – Create Email Marketing Campaign for your Business	

	10. Search Engine Optimization (SEO) – Create Search Engine Optimization (SEO) content for your Business	
2.	The praticals should be based on the subject covered during the Semester. This should be evaluated based on submission of assignment and viva-voce examination.	
3.	Project Guidelines - Students will have to work on this project out of class hrs. • Understanding Business • Understanding Website Architecture • Website Audit using tools • Setting up business goals • Pre-Setup – Analytics & Search Console • Keyword Research	

Syllabus - Semester – II

Specialization Group – III: Data Analysis

Subject Code	Subject Name	Type	Marks	Sessions	Credits
401	Fundamentals of Data Analysis	C	100	45	4
402	Business Statistics	C	100	45	4
403	Python	C	100	45	4
404	Practical, Project	FI	100	45	4

Subject Code	Subject Title	Marks
401	Fundamentals of Data Analysis	100

OBJECTIVE:
The student will be able to
- To learn about the importance of analytics, data awareness and responsibility.
- To describe statistics, basic inferential statistics, linear regression, probability concepts and calculations.

Sr. No.	Topic Details	Nos. of Session	%
1.	Data Science Concepts Using the past to predict the future, advantages, disadvantages, Data generation, interpretation and visualisation. Exploratory Data Analysis, Inference Vs Prediction. Management by Facts.	5	10
2.	Data Modelling Approach, Contextual Data, Data Organisation, Structured Vs Unstructured data, the 5 V's of Business Analytics, Data Analytics framework, Analytics Tools – licensed vs open source, comparison of software features and capabilities.	10	20
3.	Data Analysis Techniques A|B Testing, What-if scenarios, Market Basket Analysis, Classification and Regression Tree, Monte Carlo Simulation, Time Series.	10	30
4.	Statistical Distributions - Normal, Binomial, Poisson. Measuring Central Tendencies, Symmetry, Variability. Correlation, Regression.	10	20
5.	Data Science Toolkit Cluster, Decision Tree, Factor, Regression, Machine Learning, Segmentation Analysis, Sentiment Analysis.	10	20

Reference Books:

1. Statistical data analysis explained: applied environmental statistics with R, Clemens Reimann. Chichester: John Wiley and Sons
2. The analytics revolution: how to improve your business by making analytics operational in the big data era, Bill Franks. Hoboken: Wiley
3. Taming the big data tidal wave: finding opportunities in huge data streams with advanced analytics, Bill Franks. Hoboken: John Wiley & Sons.
4. Big data, big analytics: emerging business intelligence and analytic trends for today's business, Michael Minelli. Hoboken: John Wiley & Sons

Self-learning / Reference links - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coursera.org/

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coursera.org/

Subject Code	Subject Title	Marks
402	Business Statistics	100

OBJECTIVE:
The student will be able to
- To understand the importance of data-driven business decisions.
- To learn the basics of business decision-analysis.
- To summarize business data numerically and graphically.
- Learn the basics of beginning predictive business modeling
- To understand the importance of business sampling methods, and be able to describe
- different business sampling methods.
- To understand the process associated with statistical decisions, defining and formulating
- problems, analyzing the data, and using the results in decision making.

Sr. No.	Topic Details	Nos. of Session	%
1.	Introduction to Statistics: Introduction to Statistics, Importance of Statistics in modern business environment. Definition of Statistics, Importance, Scope and Applications of Statistics, Characteristics of Statistics, Functions of Statistics, Limitations of Statistics. Need of Data, Types of Data, Principles of Measurement, Source of Data, Data Classification, Tabulation and Presentation.	4	5
2.	Measures of Central Tendency and Dispersion: Introduction, Objectives of statistical average, Requisites of a Good Average, Statistical Averages - Arithmetic mean - Properties of arithmetic mean - Merits and demerits of arithmetic mean ,Median - Merits and demerits of median , Mode - Merits and demerits of mode , Geometric Mean , Harmonic Mean , Appropriate Situations for the Use of Various Averages , Positional Averages , Dispersion – Range - Quartile deviations, Mean deviation ,Standard Deviation -Properties of standard deviation Coefficient of Variance	6	12
3.	**Sampling, Sampling Distributions and Testing:** Introduction , Population and Sample - Universe or Population - Types of Population – Sample , Advantages of Sampling, Sampling Theory - Law of Statistical Regularity - Principle of Inertia of Large Numbers - Principle of Persistence of Small Numbers - Principle of Validity - Principle of Optimization , Terms Used in Sampling Theory, Errors in Statistics, Measures of Statistical Errors, Types of Sampling - Probability Sampling - Non-Probability Sampling, Case let on Types of Sampling, Determination of Sample Size, Central Limit Theorem **Testing of Hypothesis in Case of Large and Small Samples:** Introduction – Large Samples – Assumptions , Testing Hypothesis - Null and alternate hypothesis - Interpreting the level of significance - Hypotheses are accepted and not proved , Selecting a Significance Level - Preference of type I error - Preference of type II error - Determine appropriate distribution,	20	38

	Two – Tailed Tests and One – Tailed Tests - Two – tailed tests - Case study on two –tailed and one-tailed tests, Classification of Test Statistics - Statistics used for testing of hypothesis - Test procedure - How to identify the right statistics for the test , Testing of Hypothesis in Case of Small Samples - Introduction – small samples, 't' Distribution , Uses of 't' test **Chi – Square Test:** Introduction , Chi-Square as a Test of Independence - Characteristics of χ^2 test - Degrees of freedom - Restrictions in applying χ^2 test - Practical applications of χ^2 test - Levels of significance - Steps in solving problems related to Chi-Square test - Interpretation of Chi-Square values , Chi-Square Distribution - Properties of χ^2 distribution - Conditions for applying the Chi-Square test - Uses of χ^2 test , Applications of Chi-Square test - Tests for independence of attributes - Test of goodness of fit - Test for specified variance		
4.	**Simple Correlation and Regression:** Introduction , Correlation - Causation and Correlation - Types of Correlation - Measures of Correlation - Scatter diagram - Karl Pearson's correlation coefficient - Properties of Karl Pearson's correlation coefficient - Factors influencing the size of correlation coefficient , Probable Error - Conditions under which probable error can be used , Spearman's Rank Correlation Coefficient , Partial Correlations , Multiple Correlations , Regression - Regression analysis - Regression lines - Regression coefficient , Standard Error of Estimate , Multiple Regression Analysis , Reliability of Estimates , Application of Multiple Regressions	10	15
5.	**Forecasting and Time Series Analysis:** Introduction, Types of forecasts, Timing of forecast, Forecast methods-Quantitative and Qualitative Forecasting Methods, **Time Series Analysis** -Introduction, Time Series Analysis , Utility of the Time Series , Components of Time Series - Long term trend or secular trend - Seasonal variations - Cyclic variations - Random variations, Methods of Measuring Trend - Free hand or graphic method - Semi-average method - Method of moving averages - Method of least squares, Mathematical Models for Time Series - Additive model - multiplicative model, Editing of Time Series, Measurement of Seasonal Variation - Seasonal average method - Seasonal variation through moving averages - Chain or link relative method - Ratio to trend method, Forecasting Methods Using Time Series - Mean forecast - Naive forecast - Linear trend forecast - Non-linear trend forecast - Forecasting with exponential smoothing	10	15
6.	**Index Numbers:** Introduction, Definition of an Index Number – Relative - Classification of index numbers , Base year and current year - Chief characteristics of index numbers - Main steps in the construction of index numbers, Methods of Computation of Index Numbers – Un-weighted index numbers - Weighted index numbers, Tests for Adequacy of Index Number Formulae , Cost of Living Index Numbers of Consumer Price Index - Utility of consumer price index numbers - Assumptions of cost of living	10	15

index number - Steps in construction of cost of living index numbers , Methods of Constructing Consumer Price Index - Aggregate expenditure method - Family budget method - Weight average of price relatives, Limitations of Index Numbers , Utility and Importance of Index Numbers		

Reference Books
1. Business Statistics, J. K. Sharma, Pearson Education-2nd Edition
2. Business Statistics, Naval Bajpai, Pearson Education-2nd Edition
3. The Art of Computer systems Performance Analysis, Raj Jain, Wiley India Pvt Ltd,
4. Complete Business Statistics, Amir Aczel, Jayavel Sounderpandian, (Seventh Edition), *Tata McGraw-Hill* Education Pvt. Ltd - 2012
5. Business Statistics Theory and Applications, by Jani P.N , PHI

Self-learning / Reference links - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coursera.org/

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Subject Code	Subject Title	Marks
403	Python	100

OBJECTIVE:

The student will be able to

- To make the student learn basics of python programming language.
- To expose the students to various data structures.
- To make the students aware of various object oriented concepts.
- To expose the students to advanced concepts in Python.

Sr. No.	Topic Details	Nos. of Session	%
1.	Python Installation and Working of it, Data types in python, Operators in python, Input and Output, detail study of python blocks, control statements, Branching statements.	5	10
2.	Basics of Python Programming: String and Character in python, List and Tuples, Dictionaries, Arrays in python, Functions.	10	20
3.	OOP Concepts in Python:Procedural and Object-Oriented Programming, Objects, class, Method overloading, Polymorphism, Inheritance, hands on with Lamba function in python coding with the use of functions, modules and external packages.	10	30
4.	Files in Python:Files in Python, Directories, Building Modules, Packages, Text Processing, Regular expression in python.	10	20
5.	Python Integration Primer:Graphical User interface, Networking in Python Advanced Python: Introduction to Django, Introduction to Multithreading and security in Python.	10	20

Text Books:
- "Beginning Python: Using Python 2.6 and Python 3.1"., Wrox Publication
- Anurag Gupta, G. P. Biswas, "Python Programming", McGraw-Hill
- E. Balagurusamy, "Introduction to computing and problem-solving using python", McGraw Hill Education

Reference Books
- "Learn Python the Hard Way, 3rd Edition, Zed Shaw's Hard Way Series
- Laura Cassell, Alan Gauld, "Python Projects", Wrox Publication

Self-learning / Reference links - (Suggested not restricted)
- https://nptel.ac.in/courses/106/106/106106182/

Subject Code	Subject Title	Marks
404	Practicals, Case study and Project	100

The practicals should be based on the subject covered during the Semester.
This should be evaluated based on submission of assignment and viva-voce examination.

Syllabus - Semester – II

Specialization Group – IV: Cloud Computing

Subject Code	Subject Name	Type	Marks	Sessions	Credits
501	Introduction to Cloud Computing	C	100	45	4
502	Cloud Computing	C	100	45	4
503	Applications of Cloud	C	100	45	4
504	Case study and Project	FI	100	45	4

Subject Code	Subject Title	Marks
501	Introduction to Cloud Computing	100

OBJECTIVE:
The student will be able to
- To become familiar with Cloud Computing
- To give technical overview of Cloud Programming and Services
- To understand security issues in cloud computing

Sr. No.	Topic Details	Nos. of Session	%
1.	Cloud Computing Overview Cloud Computing definition and characteristics, Cloud Computing and SOA, Cloud reference architectures, Technology providers vs. Cloud providers vs. Cloud vendors.	05	10
2.	Cloud service models Public Clouds, private Clouds, hybrid Clouds, and community clouds.	05	10
3.	Cloud deployment models Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), Business Process as a Service (BPaaS).	10	30
4.	Cloud Security Cloud security challenges, Cloud security approaches: encryption, tokenization/obfuscation, cloud security alliance standards, cloud security models and related patterns.	05	10
5.	Cloud Computing Standards Introduction- Objectives, Best Practices and Standards, Practical Issues- Interoperability- Portability- Integration- Security, Standards Organizations and Groups- Cloud Security Alliance- Distributed	10	20

	Management Task Force (DMTF)- National Institute of Standards and Technology (NIST)- Open Cloud Consortium (OCC)- Open Grid Forum (OGF)- Object Management Group (OMG)- Stor-age Networking Industry Association (SNIA)- Cloud Computing Interoperability Forum (CCIF)- Vertical Groups.		
6.	E-Commerce in Cloud Computing Global Rise of E-Commerce: Increasing Use of Technology, Inherent Advantages of e-commerce, Technological Advances , Changing Face of Retail. Current Enterprise e-commerce Deployed De-ployment Architecture: DNS, Web Servers, Web Servers, Application Servers, Databases, Hosting. Limitations of Current Deployment Architecture : Static Provisioning, Scaling for Peaks, Outages Due to Rapid Scaling.	10	20

Reference Books
1. Cloud Computing : Concepts, Technology and Architecture   Thomas Erl
2. Cloud Computing Paperback-1   Mehul, Mahrishi K. Kanth
3. Cloud Computing Black Book.   Kailash Jayaswal,

Self-learning / Reference links - (Suggested not restricted)
1. https://www.simplilearn.com/
2. https://www.mygreatlearning.com/
3. https://cloud.google.com/training

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://learndigital.withgoogle.com/
2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/
5. https://cloud.google.com/training

Subject Code	Subject Title	Marks
502	Cloud Computing Architecture	100

OBJECTIVE:

The student will be able to

- Understand the Cloud architecture and cloud application.
- Understand the cloud service management.
- Understand the implementation of cloud based services
- Study development environments for service development.
- Understand the cloud IT model

Sr. No.	Topic Details	Nos. of Session	%
1.	Cloud Applications Technologies and the processes required when deploying web services, Deploying a web service from inside and outside a cloud architecture, advantages and disadvantages.	05	10
2.	Cloud Service Management Reliability, availability and security of services deployed from the cloud. Performance and scalability of services, tools and technologies used to manage cloud services deployment.	05	10
3.	Cloud Economics Cloud Computing infrastructures available for implementing cloud based services, Economics of choosing a Cloud platform for an organization, based on application requirements, economic constraints and business needs (e.g Amazon, Microsoft and Google, Salesforce.com, Ubuntu and Red-hat)	10	20
4.	Cloud Programming Environment and Architectures Service creation environments to develop cloud based applications, Development environments for service development; Amazon, Azure, Google App.	05	10
5.	Cloud IT Model Analysis of Case Studies when deciding to adopt cloud computing architecture. How to decide if the cloud is right for your requirements. Cloud based service, applications and development platform deployment so as to improve the total cost of ownership (TCO).	10	20
6.	Case Studies Google App Engine(GAE) - GAE Architecture - Functional Modules of GAE - Amazon Web Services(AWS) - GAE Applications - Cloud Software Environments - Eucalyptus - Open Nebula - Open Stack.	10	30

Reference Books

1. Enterprise Cloud Computing Technology Architecture Applications   Gautam Shroff
2. Cloud Computing, A Practical Approach   Toby Velte
3. Cloud Computing Strategies   Dimitris Chorafas
4. Distributed and Cloud Computing   Kai Hwang, Jack

Self-learning / Reference links - (Suggested not restricted)
1. https://www.simplilearn.com/
2. https://www.mygreatlearning.com/
3. https://cloud.google.com/training

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://learndigital.withgoogle.com/
2. https://swayam.gov.in/
3. https://www.udemy.com/
4. https://www.simplilearn.com/
5. https://cloud.google.com/training

Subject Code	Subject Title	Marks
503	Cloud Infrastructure Management and AWS	100

OBJECTIVE:

The student will be able to

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Sr. No.	Topic Details	Nos. of Session	%
1.	Introduction to Cloud Technologies Introduction to the Cloud Computing, History of cloud computing, Cloud service options, Cloud Deployment models, Business concerns in the cloud	05	10
2.	Virtualization and Cloud Platforms Exploring virtualization, Load balancing, Hypervisors, Machine imaging, Cloud marketplace overview, Comparison of Cloud providers.	05	10
3.	Introduction to AWS AWS history, AWS Infrastructure, AWS services, AWS ecosystem.	05	10
4.	Programming, management console and storage on AWS Basic Understanding APIs - AWS programming interfaces, Web services, AWS URL naming, Matching interfaces and services, Elastic block store - Simple storage service, Glacier - Content delivery platforms.	10	30
5.	AWS identity services, security and compliance Users, groups, and roles - Understanding credentials, Security policies, IAM abilities and limitations, AWS physical security - AWS compliance initiatives, Understanding public/private keys, Other AWS security capabilities	05	10
6.	AWS services and management services Analytics services, Application services, Cloud security, Cloud Watch, Cloud Formation, Cloud Trail, Ops Works.	10	20
7.	Performance Tuning Concepts Introduction, Elements of Cloud Infrastructure (Hardware, Operating Systems, Hypervisors, Net-works, Power Management), Elements of Performance Tuning (Resource Allocation, Resource Monitoring, Resource Management)	05	10

Reference Books
1. Cloud Computing Bible   Barrie Sonsinsky
2. Amazon Web Services for Dummies   Bernard Golden
3. Cloud Computing Principles and Paradigms   Rajkumar Buyya
4. System Performance Tuning   Gian-Paolo D. Musumeci

Self-learning / Reference links - (Suggested not restricted)
1. https://www.simplilearn.com/
2. https://www.mygreatlearning.com/
3. https://cloud.google.com/training
4. https://aws.amazon.com/education/

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://learndigital.withgoogle.com/
5. https://swayam.gov.in/
6. https://www.udemy.com/
7. https://www.simplilearn.com/
8. https://cloud.google.com/training
9. https://aws.amazon.com/certification

Subject Code	Subject Title	Marks
504	Practicals, Case study and Project	100

The praticals should be based on the subject covered during the Semester.
This should be evaluated based on submission of assignment and viva-voce examination.

Syllabus - Semester – II

Specialization Group – V: UI / UX Design

Subject Code	Subject Name	Type	Marks	Sessions	Credits
601	Design thinking	C	100	45	4
602	User Interface Design (Visual designing, Illustrator & Photoshop adobe XD)	C	100	45	4
603	UX Design - User Research Experience	C	100	45	4
604	Case study and Project	FI	100	45	4

Subject Code	Subject Title	Marks
601	Design thinking	100

OBJECTIVE:
The student will be able to
- Define a problem
- Generate a lot of ideas to solve problem
- Think and design out-of-the-box

Sr. No.	Topic Details	Nos. of Session	%
7.	**Fundamentals of Design and Visual Design** Introduction to elements and principles of design. Introduction to basic elements of visual design - color theory, color wheel, visual hierarchy, legibility and readability. Introduction and exploration of trends in visual design.	05	10
8.	**Design Communication & Visualizing Ideas** Documenting and communicating design ideas through presentations **Empathy & understanding problems** Learn how to understand users, techniques to empathize with users and identify key user problems.	05	10
9.	**Design thinking** Introduction to design thinking, history of design thinking, wicked problems, case studies in design thinking, design thinking process, implementing the process in driving innovation, design thinking in social innovations An exercise in design thinking – implementing design thinking for making the process of a user better.	05	10
10.	**Information and Data Study** Understanding and collection of data, methods of collecting data, tools for collecting data, analysing data, using data analytics tools like Google analytics for user experience	05	10

	User Research application		
11.	**Introduction to Interaction Design** Importance of Interaction design, User cantered design, design of interactive products, understanding micro interactions, analyse and critique interaction design, the scope of interaction design, methods of interaction design, tools for interaction design, sketching and paper wireframing.	10	30
12.	**Design thinking application** Design thinking process and implementing it for a digital product	05	10
13.	**Introduction to 6D** 6D UX process – Discover, Design, Dream, Design, Develop, Deliver.	05	10
14.	**Wireframing & Prototyping** Design wireframes on paper and translate into digital wireframes for web, mobile, wearables, HMI and other digital screens paper concepts	05	10

Reference Books
1. Don't Make Me Think   Steve Krug
2. The Elements of User Experience   Jesse James Garret
3. Designing for the Digital Age   Kim Goodwin
4. Design Thinking for Beginners   Kilian Langenfel

Self-learning / Reference links - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coursera.org/
3. https://www.ideou.com/pages/design-thinking-resources

Certifications guidelines / Online certifications - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coursera.org/
3. https://www.ibm.com/design/thinking/

Subject Code	Subject Title	Marks
602	User Interface Design (Visual designing tools - Illustrator & Photoshop adobe XD)	100

OBJECTIVE:

The student will be able to

- Create illustrations and designs
- Bring together concepts from interaction design, visual design, and information architecture.

Sr. No.	Topic Details	Nos. of Session	%
1.	**Introduction to Graphic Design** •Digital Illustration • Visual Design Principles • Raster & Vector Graphics • Drawing Vector Shapes and Illustrations • Art & Sketching • Drawing Techniques • Conceptual Thinking in Creativity • Developing a Personal Illustration Style • Color Modes, Schemes, Design • Image Retouching and Color Balancing	02	05
2.	**Evolution of user interfaces** • Interaction with physical components • Flat design • Role of UI in UX • Laws of digital interface design • Understand user experience, VIMM model, Know your user, user research. **Difference between design and art** Emotional design, designing for mental models, Importance of presentation, content, interactions, screen elements, accessibility, and global standards.	03	05
3.	**User Interface Design** Features of modern GUI, Menus, Scroll bars, windows, buttons, Icons, panels, error messages etc. UI Fundamentals How & when to use common UI patterns – Menus, Tabs, Bottom tab, bar, Buttons (including "Call to action" or CTA) Accordion, Carousel, Breadcrumbs, Modals, Forms, etc.	05	10
4.	**UI Design Guidelines** UI design guidelines for different platforms and operating systems – Material guidelines, iOS, web, responsive, windows etc. Iconography & typography for interface design. Fundamentals of screen design based on design guidelines. Cross platform screen design.	05	10
5.	**Studying existing UI** UI or Visual Design Concepts Learning from existing Websites & Apps. What Works & What Does Not ?	02	05
6.	**Typography & Fonts -** Display Text (Such as Headings) versus Body, Text, Legibility, Type Trends, Typeface Selection & Pairing, Where to Get Web Fonts, Ideal Line Height, Column Width (Line Length), Hyphenation & Justification	02	05
7.	**Design Elements -** Proximity Similarity Continuity	02	02

8.	Trends in Web & App Design - Analysis of Example Websites & Apps	02	03
9.	**Multiple Screen Sizes -** Responsive Web Design, Mobile Considerations & Limitations, Discoverability Challenges, Mobile Navigation, Phone vs Tablet App Design. Designs for platforms: Mobile, Web, Tablet, Responsive, Smart Watch	02	05
10.	**UI Development** Learning front-end development technologies – HTML, Css, JavaScript, JQuery. Structure of HTML Page, Mandatory tags in html page (html, head, body). What is CSS, Different ways of applying CSS for elements, and priority chain of CSS. Heading tags (H1…H6), Tags and attributes (Class, Id, style etc.). Inline and block level elements	10	25
11.	Visual design tools – illustrator & Photoshop	10	25

Reference Books
1. Adobe Photoshop CC For Dummies   Peter Bauer
2. Don't Make Me Think   Steve Krug
3. The Elements of User Experience   Jesse James Garret
4. Designing for the Digital Age   Kim Goodwin
5. Design Thinking for Beginners   Kilian Langenfel
6. UX/UI Design 2022 Beginners   Nick Godwin

Self-learning / Reference links - (Suggested not restricted)
1. https://www.udemy.com/
2. https://www.coursera.org/
3. https://certifiedprofessional.adobe.com/photoshop

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2. https://www.coursera.org/
3. https://certifiedprofessional.adobe.com/photoshop

Subject Code	Subject Title	Marks
603	UX Design - User Research Experience	100

OBJECTIVE:
The student will be able to
- Practice design thinking to take into account every detail of user interaction
- Understand the user behaviour, motivations, goals, wants and needs in the context of the product's purpose.

Sr. No.	Topic Details	Nos. of Session	%
1.	Difference between User Experience Design and User Interface Design	02	05
2.	UX design laws and its uses • Elements used in User Experience Design	02	05
3.	UX Design Process •Research in User Experience Design •Tools and Method used for Research: creating a design strategy, Profiles, and personas, understanding psychographic and demographics, Data gathering methods, Scenario, and task analysis, writing a user story, and designing as per that, Mind Maps, Information architecture, wireframes. •User Needs and its Goals •Know about Business Goals •How to deliver a research and it phases. •Information Design and Data Visualization Interaction Design •Information Architecture Wire framing & Storyboarding •Elements and Widgets •Screen Design and Layouts •UX Design Process • Design Testing Methods and Techniques. • Usability Testing – Types and Process • Create plan for the Usability. • What is Prototype and wireframing • Various Prototyping Tools and how to prepare Usability Tests? • How to understand & refine Usability Test Results? • Hands-on Assignments and Quiz • Empathy in UX, Understanding UX design trends. • Defining the UX Design Process and its Methodology Flow Chat • User Map	15	30
4.	UX Improvement Process & Delivery Process • Understanding the Usability Test findings • Applying the Usability Test feedback in Improving the design • How to communicate with implementation/development teams • UX Deliverables and its process	10	25
5.	UX Projects & Usability testing • Web Projects • Interface and Product Design • Dashboard • Designing for IOS and Android • Importance of usability testing	10	20

6.	UX Design for rural India	02	05
7.	Industry specific UX design	02	05
8.	Introduction to Gamification and UX Design , Human Machine Interface	02	05

Reference Books

1. The Elements of User Experience   Jesse James Garret
2. Designing for the Digital Age   Kim Goodwin
3. Design Thinking for Beginners   Kilian Langenfel
4. UX/UI Design 2022 Beginners   Nick Godwin
5. UX/UI Design 2021 For Beginners   Weathers David
6. UX / UI Design: Introduction Guide To Intuitive Design And User-Friendly Experience" Branson Steven

Self-learning / Reference links - (Suggested not restricted)

1. https://www.udemy.com/
2. https://www.coursera.org/
3. https://learndigital.withgoogle.com/digitalunlocked
4. https://swayam.gov.in/
5. https://www.udemy.com/
6. https://www.simplilearn.com/

Certifications guidelines / Online certifications - (Suggested not restricted)

1. https://www.udemy.com/
2. https://www.coursera.org/
3. https://www.coursera.org/professional-certificates/google-ux-design

Subject Code	Subject Title	Marks
604	Practicals, Case study and Project	100

The practicals should be based on the subject covered during the Semester.
This should be evaluated based on submission of assignment and viva-voce examination.

Project – Use design thinking to work through a real, industry problem. Develop a design solution that addresses the problem, putting the user first. The result will be a prototype with accompanying design artifacts as well as a robust presentation to include in the portfolio.