VIMALA COLLEGE (AUTONOMOUS)

(NAAC Re-accredited (3ʳᵈ Cycle): A Grade, CGPA-3.50)

(Affiliated to University of Calicut)

DEGREE OF

BACHELOR OF VOCATION (B.Voc)

IN

WEB TECHNOLOGY

(CHOICE BASED CREDIT AND SEMESTER SYSTEM)

UNDER THE

FACULTY OF COMPUTER SCIENCE

SYLLABUS

(FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2018 – 19 ONWARDS)

VIMALA COLLEGE

ENGINEERING COLLEGE P O, THRISSUR

KERALA-680009

INDIA

REGULATIONS FOR DEGREE OF
Bachelor of Vocation (B.Voc) In
WEB TECHNOLOGY

1 PROGRAMME OBJECTIVE

The basic objective of the Programme is to open a channel of admission for vocational courses for students, who have done the 10+2 and are interested in taking computing/IT as a career.

The B. Voc courses are designed with the following objectives,
- To provide judicious mix of skills relating to a profession and appropriate content of General Education.
- To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.
- To provide flexibility to the students by means of pre-defined entry and multiple exit points.
- To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
- To provide vertical mobility to students coming out of 10+2 with vocational subjects.

2 GENERAL PROGRAMME STRUCTURE

Duration

The duration of the B.Voc. Computer Science Programme shall be 6 semesters distributed over a period of 3 academic years. The odd semesters (1, 3, 5) shall be from June to October and the even Semesters (2, 4, 6) shall be from November to March. Each semester shall have 90 working days inclusive of all examinations days distributed over a minimum of 18 weeks of 5 working days consisting of six hours. For final semester internship, the total duration is 450 hours.

Levels of Awards

B. Voc is programme with multiple exits. Following table shows the various certificates and their duration.

Awards	Duration
Diploma	2 Semesters

Advanced Diploma	4 Semesters
B.Voc Degree	6 Semesters

Students are free to exit at any point in the duration of the programme. Only those students who successfully complete the courses and clear the examination are eligible for the certificate. Separate certificate will be awarded for each year for successful candidates. Students who fail in any course may be allowed to move the higher level but won't be eligible for any certificates until she clears previous courses. B. Voc degree will confer to those whose successfully complete the diploma, advanced diploma and internship.

Course

The B.Voc Programme is designed to bridge the potential skill gap identified. The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components.

General Education Components

- The general education component provides emphasis to Communication skill, Presentation skill, Health and Safety, Industrial Psychology, Environmental awareness, Entrepreneurship development and other relevant subjects in the field.
- An option for additional language should be provided which enhances the employability outside the state.
- General Education Components should not exceed 40% of the curriculum

The minimum number of courses required for completion of the Diploma in web designing is 12, Advanced Diploma in Website Development is 24 and B.Voc. Web Technology Programme is 36. Total credits in a semester: 30(equivalent to 450 hours).

Attendance:

A candidate shall be permitted to appear for the Semester-End examinations only if she satisfies the following requirements:

- She must secure not less than 75% attendance in the total number of working days in each semester.
- She must earn a progress certificate from the head of the institution stating that she has satisfactorily completed the course of study prescribed in the semester as required by these regulations.
- Her conduct must be satisfactory

It shall be open to the Controller of Examinations to grant condonation of shortage of attendance on the recommendation of the head of the institution in accordance with the following norms.

- The shortage shall not be more than 10%

- Shortage up to 20% shall be condoned once during the entire course provided such shortage is caused by continuous absence on genuine medical grounds.
- Shortage shall not be condoned more than twice during the entire course.
- Candidate who is not eligible for condonation of shortage of attendance shall repeat the semester as per university norms.

If a student registered in first semester of the B.Voc. Computer Science Programme is continuously absent from the classes for more than 14 working days at the beginning of the semester without informing the authorities the matter shall immediately be brought to the notice of the Principal. The names of such students shall be removed from the rolls.

Registration/Re-registration

Every candidate should register for all subjects of the End examinations of each semester. A candidate who does not register will not be permitted to attend the Semester-End examinations; she shall not be permitted to attend the next semester. A candidate shall be eligible to register for any higher semester, if she has satisfactorily completed the course of study and registered for the examination. She should register for the semester at the start of the semester before the stipulated date. College will notify the starting and closing dates for each semester.

Rejoining the course

- Rejoining the course will be allowed to only if the candidate has secured a minimum CGPA of 2.5.
- The candidate should remit the fees prevailing that time.
- B. Voc governing council will take the decision regarding the re joining.

College Transfer

College transfer is not allowed in any circumstances.

B.Voc degree is recognized at par with other U.G Programme approved by University of Calicut.

3 ADMISSION

Eligibility

- The admission to B Voc programme will be as per the rules and regulations of the University for UG admissions.
- Basic eligibility for B.Voc is 10+2 and above in any stream (No age limit)
- The eligibility criteria for admission shall be as announced by the University from time to time.
- Separate rank lists shall be drawn up for reserved seats as per the existing rules.

- Grace Marks may be awarded to a student for meritorious achievements in co-curricular activities such as Sports/Arts/ NSS/NCC/ Student Entrepreneurship.
- Preferred subjects and index mark calculations will be decided by the respective Board of Studies.

Diploma Holders

Diploma holders (after 10+2) in the parent courses, approved by the University, who satisfies eligibility criteria can be admitted to the higher diploma(3rd semester) based on the availability of the seats and is under the sole discretion of the principal of the college/ B. Voc consortium.

Reservation/Quota

A maximum of 50 students can be admitted to one B. Voc programme. The students can be admitted only to the first semester (except for diploma holders). No students are admitted directly to the Third and Fifth semester in any circumstance except for diploma holders. Diploma holders may be permitted to third semester directly as mentioned above. The reservation rules for as same as that of the regular UG programmes conducted in colleges affiliated to this university. Separate rank lists shall be drawn up for reserved seats as per the existing rules.

Fees Structure

The course fee and examination fee for the first three years will be equivalent to B.Sc Computer Science (Aided Stream). The college can collect Caution deposit, PTA fund, special fees, university fees, sports fee etc according to the norms provided by the university at the time of admission.

Prospectus

The College shall make available to all students admitted a Prospectus listing all the courses offered in various Departments during a particular semester. The information so provided shall contain title of the courses, the semester in which it is offered and credits for the courses. Detailed syllabi shall be made available in the college websites.

There shall be a uniform calendar prepared by the college, conduct/schedule of the courses, examinations and publication of results.

5 COURSE EVALUATION

Evaluation (both internal and external) is carried out using Mark system. The grading on the basis of total internal and external marks will be indicated for each course and for each semester and for the entire programme; Indirect Grading System in 7 point scale is as below:

To find semester Grade Point Average (SGPA)

SGPA = Sum of the credit points of all courses in a semester
          Total credits in that semester

$$SGPA = \frac{C1G1 + C2G2 + C3G3 + ...}{C1 + C2 + ...}$$

Where G1, G2......are grade points and C1, C2...are credits of different courses of the same semester

Credit point of a semester= SGPA X Credit load of the semester

Total marks for each general and skill courses, including lab courses and Project Evaluation cum Programme viva voce shall be 100 marks.

The evaluation scheme for each course shall contain two parts (1) Internal evaluation (2) external evaluation 20% weight shall be given to the internal evaluation. The remaining 80% weight shall be for the external evaluation.

INTERNAL EVALUATION

20% of the total marks in each course (i.e., 20 marks), including lab and excluding internship and project are from internal examinations.

Internal assessment shall be conducted throughout the semester. It shall be based on internal examinations, assignments (such as home work, problem solving, group discussions, quiz, literature survey, seminar, team project, software exercises, etc.) as decided by the faculty handling the course, and regularity in the class. Assignments of every semester shall preferably be submitted in Assignment Book, which is a bound book similar to laboratory record.

The mark distribution to award internal continuous assessment marks for theory subject should be as follows:

Assessment	Mark
Test papers (minimum two, best two out of three is preferred)	10
Assignments (minimum two) such as home work, problem solving, group discussions, quiz, literature survey, seminar, term-project, software exercises, etc.	5
Regularity in the class	5

The mark distribution to award internal continuous assessment marks for practical subject should be as follows:

Assessment	Marks
Evaluation in the lab and Rough Record	10

End-semester Test	**4**
Viva	**1**
Regularity	**5**

Note:
- No candidate will be permitted to attend the end-semester practical examination unless she produces certified record of the laboratory.
- Full credit for regularity in the class can be given only if the candidate has secured minimum 90% attendance in the subject. Attendance evaluation for each course is as follows

Attendance	Marks
90% and Above	5
85 to 89.9%	4
80 to 84.9%	3
76 to 79.9%	2
75 to75.9 %	1

EXTERNAL EVALUATION

Semester-End examinations for theory and practical courses will be conducted by the College. There shall be examinations at the end of each semester for both theory and practical. Failed or improvement candidates will have to appear for the Semester-End examinations along with regular students.

To ensure transparency of the evaluation process, the internal assessment marks awarded to the students in each course in a semester shall be notified on the notice board at least one week before the commencement of external examination. There shall not be any chance for improvement for internal marks. The course teacher(s) shall maintain the academic record of each student registered for the course, which shall be forwarded to the Controller of examinations by the college Principal after obtaining the signature of both course teacher and HOD.

The marks secured for internal examination only need be sent to university, by the colleges concerned.

Internship and Project

Internship and the major project should be carried out in the industry, not necessarily with industry partner. The major idea for internship is to implement the things learned and to get a real life experience. The Evaluation process follows 100% external assessment

- There will be internship/project at the end of 2nd and 4th semesters and an internship for the whole sixth semester.

- Every student will be assigned an internal guide, allotted from the parent department concerned or an expert available in the college appointed by the principal or the head of the department.
- The student has to make regular discussions with the guide while choosing the subject/area and throughout the life time of the project.
- At least three reviews should be conducted to evaluate the progress of work.
- An evaluation team is constituted for conducting the evaluation. The team consist of external examiner, allotted by the university from the approved examination panel, representative from the industry and a faculty.
- Students should submit a report of their work. A valid certificate from the organization should be produced as a proof that the work is carried out in the respective organization.
- Students are required to demonstrate the working model of their work (if possible) to the panel of examiners. A viva will be conducted based on the report and students are supposed to clarify the queries regarding their work.
- Mark distribution for internship assessment

Distribution	Marks
Content and relevance of Dissertation	60
Viva	20
Presentation	20

Minimum for pass

The successful completion of all the courses prescribed for the diploma/degree programme with E grade (40 %) shall be the minimum requirement for the award of diploma/degree.

Notes:

- For Project/internship, the minimum for a pass shall be 50% of the total marks assigned to the respective examination.
- A student who does not secure this pass marks in a subject will have to repeat the respective subject.
- If a candidate has passed all examinations of B.Voc. Course (at the time of publication of results of last semester) except project/internship in the last semester, a re-examination for the same should be conducted within one month after the publication of results. Each candidate should apply for this Save-A-Year examination within one week after the publication of last semester results.

Moderation

- Moderation shall be awarded subject to a maximum of 5 % of external total marks to be awarded in Semester.

- For a course concerned, the maximum of moderation awarded shall be limited to 10% of the total marks to be awarded for the external course concerned.
- If a student fails for a single course, this limit can be enhanced to 15 % of external in the course.
- However Board of examiners/B. Voc consortium concerned shall have the liberty to fix low percentage of marks for moderation subjected to the conditions mentioned above.

Pattern of Questions for Semester-End Examinations of Theory/Practical Subjects

The question papers of Semester-End examinations of theory subjects shall be able to perform achievement testing of the students in an effective manner. The question paper shall be prepared

- Covering all sections of the course syllabus and total marks from each module should be approximately same.
- Unambiguous and free from any defects/errors
- Emphasizing knowledge testing, problem solving & quantitative methods
- Containing adequate data/other information on the problems assigned
- Having clear and complete instructions to the candidates.

Duration of Semester-End examinations will be 3 hours. The pattern of questions for theory subjects shall be as follows:

Section	Total No of Questions	No. of Questions to be answered	Marks for each question	Total marks
A: Very Short/Objective answer questions	10	10	1	10
B: Short answer questions	12	8	2	16
C: Short Essays	9	6	4	24
D: Essays	4	2	15	30
Total				80

For practical:

Marks Distribution	Total marks
Theory/ Algorithm/Flow diagram	20
Implementation	30
Result/Output	10
Record	10
Viva	10
Total	80

Credit System

Each subject shall have a certain number of credits assigned to it depending upon the academic load and the nature and importance of the subject. The credit associated with each subject will be shown in the prescribed scheme and syllabi. Each course shall have an integer number of credits, which reflects its weightage.

- One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, workshops/IT and tutorials;
- For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

Grading- Indirect Grading System

Indirect Grading System based on a 7 -point scale is used to evaluate the performance of students.

- Each course is evaluated by assigning marks with a letter grade (A+, A, B, C, D, E or F) to that course by the method of indirect grading.
- An aggregate of E grade with 40 % of marks (after external and internal put together) is required in each course for a pass (Except for project*) and also for awarding a degree/diploma.
- Appearance for Internal Assessment and End Semester Evaluation are compulsory and no grade shall be awarded to a candidate if she is absent for Internal Assessment / End Semester Evaluation or both.
- A student who fails to secure a minimum grade for a pass in a course is permitted to write the examination along with the next batch.
- After the successful completion of a semester, Semester Grade Point Average (SGPA) of a student in that semester is calculated using the formula given below. For the successful completion of a semester, a student should pass all courses. However, a student is permitted to move to the next semester irrespective of SGPA obtained.

- SGPA of the student in that semester is calculated using the formula

$$\textbf{SGPA} = \frac{\textbf{Sum of the credit points of all courses in a semester}}{\textbf{Total credits in that semester}}$$

- The Cumulative Grade Point Average (CGPA) of the student is calculated at the end of a programme. The CGPA of a student determines the overall academic level of the student in a programme and is the criterion for ranking the students. CGPA can be calculated by the following

CGPA = <u>**Total credit points obtained in six semesters**</u>
<div align="center"><u>**Total credits acquired (180)**</u></div>

- SGPA and CGPA shall be rounded off to two decimal places. CGPA determines the broad academic level of the student in a programme and is the index for ranking students (in terms of grade points).
- An overall letter grade (Cumulative Grade) for the entire programme shall be awarded to a student depending on her/his CGPA

Marks scored	Grade	Remarks
90 and Above	A+	Outstanding
80 to 89	A	Excellent
70 to 79	B	Very Good
60 to 69	C	Good
50 to 59	D	Satisfactory
40 to 49	E	Adequate
Below 40	F	Failure

6 GRADE CARDS

The College shall issue to the students grade/marks card (by online) on completion of each semester, which shall contain the following information.

- Name of University

- Name of College

- Title of Under Graduate Programme

- Semester concerned

- Name and Register Number of student

- Code number, Title and Credits of each course opted in the semester

- Internal marks, External marks, total marks, Grade point (G) and letter grade for each course in the semester

- The total credits, total credit points and SGPA in the semester (corrected to two decimal places)

- Percentage of total marks

The final Grade/mark Card issued at the end of the final semester shall contain the details of all courses taken during the entire Programme including those taken over and above the prescribed minimum credits for obtaining the degree. However, for the compilation of CGPA only the best performed courses, if any, with maximum grade points alone shall be taken subject to the minimum credits requirements (180) for passing a specific degree. The final grade card shall show the percentage of marks, CGPA (corrected to two decimal places) and the overall letter grade of a student for the entire Programme. The final grade/mark card shall also include the grade points and letter grade of general and skill components. This is to be done in a seven point indirect scale.

7 REVALUATION

In the new system of grading, revaluation is permissible. The prevailing rules for revaluation are applicable. Students can apply for photocopies of answer scripts of external

examinations. Applications for photocopies/scrutiny/revaluation should be submitted within 10 days of publication of results. The fee for this shall be as decided by the university.

8 COURSE IMPROVEMENT

A maximum of two courses can be improved in each semester. Improvement of a particular semester can be done only once. The student shall avail the improvement chance in the succeeding year after the successful completion of the semester concerned. The internal marks already obtained will be carried forward to determine the grades/marks in the improvement examination. If the candidate fails to appear for the improvement examination after registration, or if there is no change in the results of the improvement examination appeared, the marks/grades obtained in the first appearance will be retained.

Improvement and supplementary examinations cannot be done simultaneously.

9 AWARD OF DEGREE

The successful completion of all the courses prescribed for the B.Voc. Web Technology Programme with E grade (40 %) shall be the minimum requirement for the award of B.Voc. Web Technology Programme degree.

10 GRIEVANCE REDRESSAL COMMITTEE

COLLEGE LEVEL

The College shall form a Grievance Redressal Committee in each department comprising of course teacher and one senior teacher as members and the Head of the department as Chairman. This committee shall address all grievances relating to the internal assessment grades of the students. There shall be a College Level Grievance Redressal Committee comprising of Student Advisor, two senior teachers and two staff council members (one shall be elected member) as members and principal as Chairman.

11 ANTI RAGGING CELL

Head of Institution shall take necessary steps to constitute anti-ragging committee and squad at the commencement of each academic year. The committee and the squad shall take effective steps as specified by the Honorable Supreme Court of India, to prevent ragging.

12 PROGRAM STRUCTURE

LEGEND	
Item	Description
C	Credits
E	External Component (%)

I	Internal Component (%)
L	Lecture Hours
P	Practical Hours
T	Total

NSQF Level	Skill Component Credits	General Education credits	Total Credits for award	Normal Duration	Exit Points/ Awards	Job Role
4	18	12	30	One Sem	Certificate	1) Graphic Designer
5	36	24	60	Two Sem	Diploma	1) Media Developer NASSCOM QP: SSC/Q0504 2) Web Developer NASSCOM QP: SSC/Q0503 3) Web Designer
6	72	48	120	Four Sem	Advanced Diploma	1) Web Application developer 2) SEO specialist
7	108	72	180	Six Sem	B.Voc Degree	1) UI Developer NASSCOM QP: SSC/Q0502 3) Cross Platform Application Developer

Course Code	Title	Credits	T/P	Type
Semester I				
GEC1EG01	A01 Transactions:Essential English Language Skills	4	T	General
GEC1ML02 GEC1HD02	A07 Communication skills other than English (Malayalam /Hindi)	4	T	
GEC1CF03	Computer Fundamentals	4	T	
SDC1WT01	Introduction to Adobe Photoshop &Illustrator	5	T	Vocational
SDC1WT02	Basics of HTML	4	T	
SDC1WT03(P)	Graphics Lab	4	P	
SDC1WT04(P)	HTML Lab	5	P	
Semester II				
GEC2EG04	A02 Ways With Words:Literatures in English	4	T	General
GEC2ML05 GEC2HD05	A08 Literature in Languages other than English (Malayalam /Hindi)	4	T	
GEC2DH06	Theory of Domain &Hosting	4	T	
SDC2WT05	Introduction to BootStrap	5	T	Vocational
SDC2WT06	Advanced HTML and CSS	4	T	
SDC2WT07(P)	Advanced HTML Lab	5	P	
SDC2WT08(Pr)	Mini Project / Internship	4	P	
Semester III				
GEC3EG07	A03 Writing for Academic & Professional Success	4	T	General
GEC3VC08	Theory of Version Control	4	T	
GEC3NS09	Numerical Skills	4	T	
SDC3WT09	Web Programming using PHP and Javascript	4	T	Vocational
SDC3WT10	RDBMS using MY SQL	5	T	

SDC3WT11(P)	PHP Lab	5	P	
SDC3WT12(P)	SQL Lab	4	P	

	Semester IV			
GEC4EG10	A04 Zeitgeist:Readings on Contemporary Culture	4	T	General
GEC4XM11	Introduction to XML	4	T	
GEC4AV12	Fundamentals of Audio, Video and Multimedia	4	T	
SDC4WT13	Scripting using Python	4	T	Vocational
SDC4WT14	Web Server Programming using Django	5	T	
SDC4WT15(P)	Python Scripting Lab	5	P	
SDC4WT16(Pr)	Mini Project / Internship	4	P	
	Semester V			
GEC5SE13	Introduction to Search Engine Optimization	4	T	General
GEC5QA14	Quality Assurance in Software	4	T	
GEC5ED15	Entrepreneurship Development	4	T	
SDC5WT17	Introduction to Cross Platform Website Applications	5	T	Vocational
SDC5WT18	Ruby on Rails	4	T	
SDC5WT19(P)	Cross Platform Website Lab	4	P	
SDC5WT20(P)	Ruby Lab	5	P	
	Semester VI			
SDC6WT21(Pr)	Internship and Project	30	P	Vocational

Semester I

Computer Fundamentals

Course Code: GEC1CF03
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To equip the students with fundamentals of Computer
- To learn the basics of Computer organization
- To equip the students to understand the networking and hosting techniques

Learning outcomes:
- Better Knowledge of computer equipment, including both hardware and software .
- Understanding basic concepts of operating systems ,networking and cloud computing.

Course Outline

UNIT I [12 T]

Concepts of Hardware and Software: Computer Languages, Language Translators, Features of good language, Basics Computer Organization: Von Neumann Model, Input unit, Output unit, Storage unit, Control unit, Memory Hierarchy, Primary Storage, Cache Memory, Registers, Secondary Storage Devices, Basics of Hardware Components – SMPS, Motherboard, Add-on Cards, Ports, Memory, Adapters, Network cables, Basic Computer Configuration.

UNIT II [12 T]

Introduction-Types of Software – System Software -Operating System -Device Driver – System Utilities -Programming Languages – (Machine Language-Assembly language-High level language-Different generations of Programming Languages)- Translator Software-(Assembler-Compiler-Interpreter)- linker-Loader -Application Software.

UNIT III [12 T]

Operating System- objectives-Types-Functions-Examples, The Evolution of Operating Systems: Serial Processing, Simple batch Systems, Multi Programmed batch Systems, Time Sharing Systems, Parallel Systems, Distributed Systems, Real time systems.

UNIT IV [12 T]

Introduction to Computer networks, Topology, categories of networks, Internetwork, Internet, Network Models, Layered model, OSI and TCP/IP models, Overview of TCP/IP models.

UNIT V [12 T]

Introduction to the Cloud, Key Cloud Characteristics, Cloud Deployment Models, Cloud Hosting.

References:

1. Sinha. P.K, *Computer Fundamentals*, BPB Publications
2. Ram. B, *Computer fundamentals*, New Age International Pvt. Ltd Publishers
3. Rajaraman V and Radhakrishnan, *An introduction to Digital computer Design*, PHI

Introduction to Adobe Photoshop & Illustrator

Course Code: SDC1WT01
Contact Hours per Week: 4T + 3P
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To make students to start making professional looking graphics immediately.

Learning outcomes:
- Efficiently manage graphics

Course Outline

UNIT I [15 T+ 12P]

Introduction to Photoshop: Photoshop environment, Palettes, Open Images, Moving Images, Toolbox, Setting Preferences; Basic Image Manipulation: Bitmap images, Vector images, Zooming & Panning an Image, Working with Multiple Images, Rulers, Guides and Grids, Color Basics and Management, Painting tools, Brush Settings; Basic Selections: Elliptical Marquee Tool, Magic Wand & Free Transform Tool, Regular & Polygonal Lasso Tools, Combining Selections, Magnetic Lasso, Quick Selection Tool & Refine Edge, Modifying Selections.

UNIT II [15 T + 12P]

Layers: Creating, Selecting, Linking & Deleting Layers, Locking & Merging Layers, Copying Layers, Using Perspective & Layer Styles, Filling & Grouping Layers, Blending Modes; Filling and Stroking, Creating & Modifying Text, Channels and masking**,** Painting In Photoshop **,** Basic Photo Correction **,** Photo Retouching and repairing, Working With The Pen Tool **,** Creating Special Effects**.**

UNIT III [15 T + 12P]

Introduction to Adobe Illustrator: Tools Panel, Control Panel; Selecting and Aligning Objects: Selection Tools: Selection Tool, Direct selection tool, Marquee, Magic Wand Tool; Objects: Selecting, Aligning, Arranging, Hiding, Reshaping; Working with groups; Create and Edit Shapes: Basic Shapes, Drawing modes: Draw behind mode, Draw inside mode; Width tools, Strokes, Shape Builder tool, Shape Modes.

UNIT IV [15 T + 12P]

Transforming Objects: Working With Artboards: adding, editing, and reordering; Objects: Scaling, reflecting, Rotating, Distorting, Shearing, Positioning, etc.; Rulers and Guides; Pen and pencil tools: Drawing, Selecting, and Editing; Color and Painting: Color controls, Swatch Libraries, Colors: Create, Select, Edit; Painting: Fills, Strokes, Live Paint Groups, Brushes, Gradients, Meshes, Patterns.

UNIT V [15 T + 12P]

Type and Text: Creating, Formatting; Special Effects: Appearance attributes, Drop shadows, glows, and feathering, Creating sketches and mosaics, Graphic Styles; Web graphics; Working with Symbols; Automating tasks: With graphics and With Actions.

Reference:

1. Adobe Creative Team, *ADOBE PHOTOSHOP CS2 Classroom in a Book*, Adobe Press, 2005
2. Brian Wood, *Adobe Illustrator CS6: Classroom in a Book*, Adobe Press, 2012
3. Andrew Faulkner, Conrad Chavez, *Adobe Photoshop CC Classroom in a Book*, Adobe Press, 2018

Basics of HTML

Course Code: SDC1WT02
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To be acquainted with basic skills of web designing

Learning outcomes:
- Understand relationship of HTML, CSS & JavaScript

Course Outline

UNIT I [12T+10P]

History of HTML; Basic HTML Structure: Tags, Head, Body, Colors, Attributes; Lists: Ordered List, Unordered List;

UNIT II [12T+15P]

Links: Introduction, Relative Links, Absolute Links, Link Attributes, Using the ID Attribute to Link within a Document;

UNIT III [12T+15P]

Images: Putting an Image on a Page, Using Images as Links ,Putting an Image in the Background, Specifying Image Size, Adding Icons.

UNIT IV [12T+15P]

Working with Tables and Frames: Creating a Table, Table Headers, Captions, Spanning Multiple Columns, Styling Table;Frames.

UNIT V [12T+20P]

Working with Forms and Controls: Basic Input and Attributes, Other Kinds of Inputs.

References:

1. O'Reilly, Introduction *to HTML and CSS*, Macmillan publishers, 2010, Second Edition
2. Jon Duckett John Wiely, *HTML and CSS*, John Wiley & Sons, Inc, 2012, Fifth Edition

Graphics Lab

Course Code: SDC1WT03(P)
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours:60
Course Evaluation: Internal – 20 Marks + External – 80 Marks

1. Illustration of Painting tools in Photoshop
2. Illustration of Rulers, Guides and Grids in Photoshop
3. Illustration of Multiple Images Manipulation in Photoshop
4. Illustration of Layers Manipulation in Photoshop
5. Illustration of Blending Modes in Photoshop
6. Illustration of Filling and Stroking in Photoshop
7. Illustration of Masking in Photoshop
8. Illustration of Photo repairing in Photoshop
9. Illustration of Special effects in Photoshop
10. Illustration of Groups Manipulation in Illustrator
11. Illustration of Shapes in Illustrator

12. Illustration of Objects manipulation in Illustrator
13. Illustration of Objects Transformation in Illustrator
14. Illustration of Pen and pencil tools in Illustrator
15. Illustration of Colors and Painting Manipulation in Illustrator
16. Illustration of Type and Text in Illustrator
17. Illustration of Special Effects in Illustrator
18. Illustration of Symbols Manipulation in Illustrator
19. Illustration of Automating tasks in Illustrator
20. Illustration of Web Graphics in Illustrator

HTML Lab

Course Code: SDC1WT04(P)
Contact Hours per Week: 4T
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks

1. Illustration of Body and pre tags
2. Illustration of text Font tags
3. Illustration of Background Images and color
4. Illustration of comment, h1….h6, and div tag
5. Illustration text formatting tags
6. Illustration of Order List tag
7. Illustration of Unorder List tag
8. Illustration of Nested tag
9. Illustration of Img tag
10. Illustration of Hyper Link tag (Anchor tag)
11. Illustration of Table tag
12. Illustration of Frame tag
13. Illustration of Form tag
14. Illustration of CSS (cascading style sheet)
15. Program to create a simple website

Semester II

Theory of Domain & Hosting

Course Code: GEC2DH06
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To obtain through knowledge on Domain Name System Terminology and Web hosting facilities.

Learning outcomes:
- Practical knowledge and Hands own expertise in Domain Configuration and Web Hosting.

Course Outline

UNIT I [12 T]

An Introduction to Domain Name System Terminology, Components, and Concepts. Introduction to Domain Name System, Domain Name, IP Address, Top-LevelDomain, Hosts, Sub Domain, Fully Qualified Domain Name, Name Servers, Root Servers, TLD Servers, Domain-Level Name Servers, Resolving Name Server, Zone Files

UNIT II [12 T]

Record Types: SOA Records, A and AAAA Records, CNAME Records, MX Records, NS Records, PTR Records, CAA Records. Domain Name Configuration Steps, Data, Domain Privacy, SSL.

UNIT III [12 T]

An Introduction to Hosting Servers: Web Hosting, Web Servers, Different Types of Web Hosts, Shared Hosting, Virtual Private Server (VPS) Hosting, Dedicated Server Hosting, Cloud Hosting,

UNIT IV [12 T]

Website Security: Issues, Risks; Protocols: HTTP, HTTPS, SMTP, TELNET, FTP, SFTP, SSL.

UNIT V [12 T]

Web Hosting Server Configuration: Steps in setting up server, FTP Client Server Architecture; Software's: Filezilla, Cyberduck, Cute FTP

References:

1. Peter Pollock, *Web hosting for dummies*, Wiley 2013
2. Wim Bervoets, *Fast, Scalable And Secure Web Hosting For Web Developers: Learn to set up your server and website*, 2016

Introduction to BootStrap

Course Code: SDC2WT05
Contact Hours per Week: 4T
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:

- Understand the basics of auto responsive environments in web site design

Learning outcomes:

- To build auto responsive websites

Course Outline

UNIT I [15 T]

Introduction to Bootstrap: Basics, Uses, Advantages, Inserting CSS, JS files; Layouts, Containers, Contents: Lists, Tables, text, images, headings, typography.

UNIT II [15 T]

Bootstrap Components: Buttons, dropdown, checkbox, Progress Bar, radio, forms: Label, Alerts, Card, Blogs, Navs, Breadcrumbs, Pagination & Pager, Jumbotrons, Wells.

UNIT III [15 T]

BS GRIDS - Grid System, BS Stacked/Horizontal, Grid Small, Gris Medium, Grid Large; Themes-Using Built in themes, Building Custom themes

UNIT IV [15 T]

Bootstrap CSS - CSS Typography, Buttons, Forms, Helpers, Images, Tables, Dropdowns, Navs, Glyphicons.

UNIT V [15 T]

BS JS – Modal dialogs, Alert, Button, DropDown, Tooltip, Popover, Collapse, Accordion, Carousel Scrollspy, Tab.

References:

1. Matt Lambert, *Learning Bootstrap 4*, Packt Publishing Ltd, Second Edition
2. Jake Spurlock, *Bootstrap*, O'Reilly, 2013
3. Silvio Moreto, *Bootstrap 4 By Example*, Packt Publishing, 2016

Advanced HTML and CSS

Course Code: SDC2WT06
Contact Hours per Week: 3T + 4P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
● To develop the skill & knowledge of Web page design.
Learning outcomes:
● Efficiently   plan out a website

Course Outline

UNIT I [12 T+10P]

Structuring Documents for the Web: Introducing HTML and XHTML; Attributes; Elements for Marking Up Text; Basic Text Formatting; Lists: Ordered List, Unordered List, Nested List; Links and Navigation; Images, Audio, and Video: Adding Images; Attributes, Images as Links; Adding Flash, Video, and Audio;

UNIT II [12 T+15P]

Tables: Basic Table Elements and Attributes, Nested Tables; Forms: Attributes, Controls, Sending Form Data to the Server, HTTP get, HTTP post;

UNIT III [12 T+15P]

Frames: Frameset, Frameset Element, Links between Frames, Nested Framesets, Inline or Floating Frames;

UNIT IV [12 T+15P]

Cascading Style Sheets: Introduction, Elements, Attributes, Properties, Controlling Text, Selector; Box Model: Properties; Page Layout;

UNIT V [12 T+20P]

Java Script: Introduction, Form Validation; Web Hosting: Validating HTML, XHTML, and CSS, Hosting;

References:

1. Shay Howe, *Learn to Code HTML and CSS: Develop and Style Websites*
2. Kogent , *Learning Solutions Inc. -HTML 5 in simple steps*
3. Steven M. Schafer , *HTML, XHTML, and CSS Bible*, 5ed,Wiley India
4. John Duckett ,*Beginning HTML, XHTML, CSS, and JavaScript*
5. Ian Pouncey , Richard York ,*Beginning CSS: Cascading Style Sheets for Web Design*

Advanced HTML Lab

Course Code: SDC2WT07(P)
Contact Hours per Week: 4T
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Course Outline

1. Illustration of Spans
2. Illustration of hyperlinks
3. Illustration of images and properties
4. Illustration to add audio and video
5. Illustration of table and nested table
6. Illustration of Forms and attributes
7. Illustration of Get and Set Methods
8. Illustration of Frames and Frameset
9. Illustration of Links between Frames and nested Frameset
10. Illustration of inline frames
11. Illustration of CSS properties and attributes
12. Formatting text in CSS
13. Illustration of Selector
14. Illustration of BoxModel
15. A program to illustrate Form validation

MiniProject

Course Code: SDC2WT08(Pr)
Contact Hours per Week: 3T

Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks

SEMESTER III

Theory of Version Control

Course Code: GEC3VC08
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To understand the changes in the software version and how to manage it.

Learning outcomes:
- To be proficient in source control and build.

Course Outline

UNIT I [12T]

Introduction: History, Features, Architecture, Components; Basic Concepts: The Repository, Versioning Models, Subversion in Action.

UNIT II [12T]

Branching and Merging: Basics, Using Branches, Copying changes between Branches, Common Use-Cases for Merging, Switching a Working Copy, Tags, Branch Maintenance.

UNIT III [12T]

Repository Administration: The Subversion Repository, Strategies for Repository Deployment, Creating and Configuring your repository, Repository Maintenance, Moving and Removing Repositories.

UNIT IV [12T]

Server Configuration: Overview, Choosing a Server Configuration, svnserve-a Custom Server, httpd - the Apache HTTP Server, Path-Based Authorization.

UNIT V [12T]

Subversion complete reference: The Subversion Command-Line; Client:svn, svnadmin, svnlook, svnsync, svndumpfilter, svnversion, mod_dav_svn Configuration Directives, mod_authz_svn. Subversion properties

References:

1. C. Michael Pilato, Ben Collins-Sussman, Brian W. Fitzpatrick, *Version Control with Subversion: Next Generation Open Source Version Control*, Second Edition, O'Reilly Media.
2. William A.Nagel, *Subversion Version Control: Using the Subversion Version Control System in Development Projects*, First *edition,* Prentice Hall.

Numerical Skills

Course Code: GEC3NS09
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
● To learn basic arithmetic, number sequences and simple mathematics.
Learning outcomes:
● Skills in basic arithmetic, number sequences and simple mathematics.

Course Outline

UNIT I [15T]

Sets and set operation - Venn Diagrams - Elements of Co-ordinate system. Matrices, Fundamental ideas about matrices and their operational rules – Matrix multiplication - Inversion of square matrices of not more than 3rd order- solving system of simultaneous liner equations. Theory of equations: meaning, types of equations –simple linear and simultaneous equations (only two variables) eliminations and substitution method only. Quadratic equation factorization and formula method ($ax^2 + bx + c = 0$ form only) problems on business application.

UNIT II [15T]

Progressions: Arithmetic progressions finding the 'n'th term of an AP and also sum to 'n' terms of an AP.Insertion of Arithmetic means in given terms of AP and representation of AP. Geometric progression: finding nth term of GP. Insertion of GMs in given GP and also representation of GP - Mathematics of Finance - simple and compound interest. (Simple problems only)

UNIT III [15T]

Meaning and Definitions of Statistics - Scope and Limitations – Statistical enquiries - Scope of the problem - Methods to be employed - types of enquiries - Presentation of data by

Diagrammatic and Graphical Method - Formation of Frequency Distribution.

UNIT IV [15T]

Measures of Central tendency - Arithmetic Mean, Median, Mode, Geometric and Harmonic mean, Measures of variation and standard, mean and quartile deviations - Skewness and Kurtosis and Lorenz curve. Analysis of Time Series: Methods of Measuring - Trend and Seasonal variations - Index number - Unweighted indices - Consumers price and cost of living indices.

References:

1. Sundaresan and Jayaseelan, *An Introduction to Business Mathematics and Statistical Methods*
2. Dr. A K Arte & R V Prabhakar , *A textbook of Business Mathematics*
3. Sanchethi and Kapoor, *Business Mathematics*
4. Gupta S.P, *Statistical Methods*
5. Navaneethan P, *Business Mathematics*

Web Programming Using PHP and Java Script

Course Code: SDC3WT09
Contact Hours per Week: 3T + 4P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To learn client side and server side scripting.
- To learn how to develop dynamic websites.
- To learn how to interact with databases through internet.

Learning outcomes:
- Better knowledge in developing javascript applications
- Better Understanding of the Web development using PHP

Course Outline

UNIT I [12T +15P]

Introduction to java script, Functions, Units, Hoisting, Strict mode in JavaScript. Objects in Java script, JavaScript Events, Strings and numbers,Arrays, Date Objects, JavaScript Errors .

UNIT II [12T +15P]

 JavaScript Forms, Validation API: Constraint Validation DOM Methods, HTML DOM: Methods, Document Object, Elements, Events, Event Listener, Navigation, Nodes,

Collections, Node Lists. JavaScript Window: Browser Object Model, Window, Screen, location, history, navigator, Popup alert, Timing, Cookies, JS AJAX: The XML Http Request Object, AJAX Request, Response, XML file.

UNIT III [12T +15P]

PHP: Introduction, Server side programming, Role of Web Server software, Including PHP Script in HTML: head, body, external. Comments, Data types, variables and scope, echo and print. Operators: Arithmetic, Assignment, Relational, Logical. Conditional Statements, Loops, break and continue. User Defined Functions.

UNIT IV [12T +15P]

Working with PHP: Passing information between pages, HTTP GET and POST method, Cookie, Session. String functions: strlen, strops, strstr, strcmp, substr, str_replace, string case, Array constructs: array(),list() and foreach(). Header().

UNIT V [12T +15P]

PHP & PostgreSQL: Features of PostgreSQL, data types, PostgreSQL commands – CREATE DATABASE, CREATE TABLE, DESCRIBE TABLE (\d table_name or using using information_schema), SELECT, SELECT INTO, CREATE AS, DELETE, UPDATE, INSERT. PHP - PostgreSQL Integration: Establishing Database Connection (pg_connect(), pg_connection_status(), pg_dbname()), Getting Error String (pg_last_error()), Closing database Connection (pg_close()), Executing SQL statements (pg_query(), pg_execute()), Retrieving Data (pg_fetch_row(), pg_fetch_array(), pg_fetch_all(), pg_fetch_assoc(), pg_fetch_object(), pg_num_rows(), pg_num_fields() pg_affected_rows(), pg_num_rows(), pg_free_result()), Insertion and Deletion of data using PHP, Displaying data from PostrgreSQL database in webpage. Introduction to AJAX - Implementation of AJAX in PHP - Simple example for partial page update.

References:

1. David Flanagan, *JavaScript: The Definitive Guide*
2. W. Gilmore, *Beginning PHP and PostgreSQL 8: From Novice to Professional*, 2007, ISBN: 9788181286000
3. Jon Duckett *, JavaScript and JQuery: Interactive Front-End Web Development*
4. Ivelin Demirov, *Learn JavaScript VISUALLY*.
5. *Jim Converse & Joyce Park*, PHP & MySQL Bible, Wiley.

RDBMS using MY SQL

Course Code: SDC3WT10
Contact Hours per Week: 5T +4P
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:

- Discuss the RDBMS concepts with MySQL database language.

Learning outcomes:

- Good knowledge in Database design and MySQL database development.

Course Outline

UNIT I [15 T + 12P]

Introduction to DBMS, characteristics of database approach , advantages of using DBMS , database concept and architecture , data models , schemes , instances , data independence , database languages, database modeling using entity-relationship(ER) , entity set attributes and keys –primary key, relationships – foreign key, weak entity types , enhanced entity-relationship(EER) and object modeling .

UNIT II [15T+ 12P]

Database design , functional dependencies , normal forms , general definition of second and third normal forms , Boyce-Codd normal form, database design process relational model concepts , relational algebra operations.

UNIT III [15T+ 12P]

Introduction to MySQL Database ,Installation of MySQL 1. Table Design- Using foreign key and Normalization 2. Practice SQL Data Definition Language(DDL) commands Table creation and alteration(include integrity constraints such as primary key, referential• integrity constraints, check, unique and null constraints both column and table level Other database objects such as view, index, cluster, sequence, synonym

UNIT IV [15T+ 12P]

SQL Data Manipulation Language (DML) commands Row insertion, deletion and updating,Retrieval of data,Simple select query,Select with where options (include all relational and logical operators), Functions: Numeric, Data, Character, Conversion and Group functions with having clause. Set operators,Sorting data,Sub query (returning single row, multiple rows, more than one column) Joining tables(single join, self join, outer join),Data manipulations using date functions,User defined functions in a query

UNIT V [15T+ 12P]

ODBC/JDBC connections Transaction Control Language (TCL) commands (Grant, revoke, commit and save point options) , Usage of triggers, functions and procedures using PL/SQL constructs

References:

1. C. J. Date, A. Kannan and S. Swamynathan, *An Introduction to Database Systems*, Pearson Education, Eighth Edition, 2009.
2. Abraham Silberschatz, Henry F. Korth and S. Sudarshan, *Database System Concepts*, McGraw-Hill Education (Asia), Fifth Edition, 2006.
3. *Fundamentals of Database Systems*, 7th Edition ,Ramez Elmasri, Shamkant B. Navathe

PHP Lab

Course Code: SDC3WT11(P)
Contact Hours per Week: 4P
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks

Course Outline

JAVA SCRIPT

1. Write a JavaScript program to find the area and circumference of a circle (use form)
1. Write a program to find the sum of the digits and reverse of a number(use form).
1. Write a JavaScript program using 3 dialog boxes(alert, prompt, confirm)
1. Write a JavaScript program for validating the Email registration form.
1. Write a JavaScript program to create a color pallete and change the background color (using mouseover event).
1. Write a Javascript program to change the background color of the document using an array of colors.(Array)

PHP

2. Display the Fibonacci series up to a given number.

1. Write a php application to generate the payslip of an employee by accepting name, basic salary and designation. The net salary will be calculated based on the following conditions.

Designation	conveyance allowance	Extra allowance
Manager	1000	500
Supervisor	750	200
Clerk	500	100
Peon	250	
HRA – 25 %		
Conditions for Income tax calculation		
Gross < 2000	0	
2000 < gross < 4000	3%	
4000 < gross < 5000	5%	
Gross > 5000	8%	

Gross= basic + HRA + conveyance + extra

Net = gross – income tax

1. Write an HTML page to display a list of fruits in a list box. Write php program to display the names of the fruits which are selected by the user.
1. Write a php program to store current date/time in a cookie and display the 'last visited on' date/time on the web page upon reopening of the same page.
2. Write a program to demonstrate session.
1. Write a php program to create an array and store 10 names in the array. Do the following operations (no built-in functions are allowed)
   a. Display the contents using for each statement.
   b. Display the array in a sorted order.
   c. Display the array without the duplicate elements
   d. Remove the last element and display
   e. Display the array in reverse order
1. Create a php program to display the biodata of a person in a table format, by reading the personal details using an HTML page.
1. Create a table "product" with fields itemcode, itemname, unitprice using MYSQL. Write php program to insert records into the table and display the items in a table format.
1. Write a php program for insert, delete, update and display operation on account table. The account table contain fields such as accountno, name and amount.
1. Create a mysql table student with fields roll no, name, mark, grade. Write a PHP program to insert data and display the mark list of a student by accepting the register no of the student.
2. Create a login page using MYSQL database

SQL Lab

Course Code: SDC3WT12(P)
Contact Hours per Week: 3P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks

Course Outline

Lab 1: In this session you need to create database for an Employee management system of an ABC organization. The details about different tables are given below. According to that you can proceed further and create tables using PostgreSQL/ MySQL. Create the following tables with the specified constraints:

Department:
Department name - Not NULL unique
Department number - Primary Key
ManagerId - Refers to employee-id of employee table.
Manager
date of joining - Not NULL.
Employee:
First name -Not NULL
Middle initials
Last name -Not NULL
Employee id -Primary Key
Date of Birth
Address
Gender -M or F
Salary -Range of 5000 to 25000
Date of Joining
Department number Refers to Department Number of Department table.
Department location:
Department number - Refers to Department number of department table.
Department location - Not NULL.
Department number & Department location are combined Primary Key
Project:
Project name-Not NULL.
Project number-Primary Key.
Project location-Not NULL.
Department number-Refers to department number of Department table.

Works-on:

Employee-id - Not NULL refers to employee-id of employee table.

Project number- Not NULL refers to Project number of Project table.

Hours - Not NULL.

Employee-id & Project number are combined primary key.

Dependent:

Employee-id - Refer to employee table employee id field

Dependent name –

Gender - M or F

Date of Birth - Not NULL

Relationship - Not NULL

Now enter a few sets of meaningful data and answer the following queries.

1. List the department wise details of all the employees.

2. Find out all those departments that are located in more than one location.

3. Find the list of projects.

4. Find out the list of employees working on a project.

5. List the dependents of the employee whose employee id is 001

Lab 2: These sessions is similar to the previous one, but in this session, assume that you are developing a database of the College library management system, for that you need to create the following tables:

• Book Records

• Book details

• Member details and

• Book issue details

Book Records:

Accession Number

ISBN Number

Books:

ISBN Number

Author

Publisher

Price

Members:

Member Id

Member Name

Maximum Number of books that can be issued

Maximum Number of days for which book can be issued

Book Issue:

Member Id

Accession Number

Issue Date

Return Date

You must create constraints, including referential integrity constraints, as appropriate. Please note accession number is unique for each book. A book, which has no return date, can be considered as issued book. Enter suitable data into the tables. Now answer the following:

1. Insert data in all the three tables (use insert).
2. Insert appropriate description associated with each table and the column (use comment).
3. Display the structure of the tables.
4. Display the comments that you have inserted.
5. Using SELECT statement, write the queries for performing the following function:
   a) Get the list of all books (No need to find number of copies).
   b) Get the list of all members.
   c) Get the Accession number of the books which are available in the library.
   d) On return of a book by a member calculate the fine on that book.
   e) List of books issued on 01-Jan-2005.
   f) Get the list of all books having price greater than Rs. 500/-
   g) Get the list of members who did not have any book issued at any time.
   h) Get the list of members who have not returned the book.
      a. Display member ID and the list of books that have been issued to him/her from time to time.
   i) Find the number of copies of each book (A book accession number would be different but ISBN number would be the same).
   j) Find the number of copies available of a book of given ISBN number.
   k) Get the member ID and name of the members to whom no more books can be issued, because they have already got as many books issued as the number for which they are entitled.

Lab 3: This session is based on Lab 2 where you have created a library management system. In this session you have different query specification.

1. Get the list of ISBN-Number, Book name, available copies of the books of which available copies are greater than zero.
2. Get the list of ISBN-Number, Book name, Total copies, available copies of the book of which available copies are greater than zero. List should be displayed in alphabetical order of book name.
3. Get the list of ISBN number, Book name, Author, total copies, cost (cost is price total copies). List should be displayed in descending order of cost.
4. Get the list of books issued to each member.
5. Write query to know the maximum and average price of the books.
6. Get the list of all existing members and the number of days for which a member is allowed to keep the book. Also find out the members who have got the maximum number of books issued.
7. Get the list of member codes of those members who have more than two books issued.
8. Find the details of the books presently issued to a member.

9. Create the history of issue of a book having a typical accession number.
10. To set the width of the book name as 35.

Lab 4: Create the following table and perform the necessary tasks defined below one by one.

- Create the following table named customer

  Column name type size

  Customer id Character 10

  Name Character 25

  Area Character 3

  Phone Numeric 7

- Insert the appropriate data into table and do the following.
- Update Phone numbers of all customers to have a prefix as your city STD Code
- Print the entire customer table
- List the names of those customers who have e as second letter in their names.
- Find out the Customer belonging to area abc
- Delete record where area is NULL.
- Display all records in increasing order of name.
- Create a table temp from customer having customer-id, name, and area fields only
- Display area and number of records within each area (use GROUP by clause)
- Display all those records from customer table where name starts with a or area is abc.
- Display all records of those where name starts with a and phone exchange is 55.

Lab 5: Answer the following queries using Library system as created earlier. You must create a view to know member name and name of the book issued to them, use any inbuilt function and operators like IN, ANY, ALL, EXISTS.

a. List the records of members who have not been issued any book using EXISTS operator.
b. List the members who have got issued at least one book (use IN / ANY operator).
c. List the books which have maximum Price using ALL operator.
d. Display Book Name, Member Name, Issue date of Book. Create a view of this query of the currently issued books.

Lab 6: Create a table of Employee (emp-number, name, dept, salary) and Department (dept number, dept name). Insert some records in the tables having integrity checks. Add some records in employee table where department value is not present in department table. Now answer the following query:

a. Display all records from employee table where department is not found in department table.
b. Display records from employee table in a report format with proper headings. This report must also contain those records where department number does not match with any value of department table.
c. Display those employee records who have salary less than the salary of person whose empcode= A100.
d. Create another table: SalesData (RegionCode, City, Salesperson- Code, SalesQty).

e. Display records where salesperson has achieved sales more than average sales of all sales persons of all the regions.

Lab 7:

Design necessary tables for storing basic information and salary details of employees of an organization. Design and implement the necessary tables. The tables are Employee(emp-number, name, dept, desigcode) and Emp_Official(Designationcode, designation, basic pay, da, hra, othr allow). Add constraints. Insert some records in the tables having integrity checks.

Write queries to perform the following

1. Insert values to these tables
2. Update the values of basic pay, DA and HRA
3. Delete an employee details.
4. Create a view to display employee salary details with net pay.

Lab 8: Create a database to store student details like personal academic and extracurricular details of a student. Insert values to these tables with necessary constraints.

1. Update values 2.Delete student details with a particular condition 3.Create a view to display student biodata.

Lab 9: Write a procedure/trigger on department code so such that the validity of the code is checked and the name of department is automatically displayed on selection of department code. Assume, design and create the necessary tables and constraints.

Lab 10: Write a procedure/trigger to generate Order Number automatically in any of the order tables.

Create the following table:

Order: Order number, Item code, Quantity

The key to the second table is order-number + item-code

Semester IV

Introduction to XML

Course Code: GEC4XM11
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To get a know-how on XML

Learning outcomes:
- Proficient in XML concepts and syntax

Course Outline

UNIT I [12 T]

Introduction to XML: Namespaces, DTD, CSS, XSL, Schemas, Query Language, XLinks, Xpointers, XPath, Digital Signatures, Canonical XML, XHTML, XML Validators: Validating and Non-Validating Parsers.

UNIT II [12 T]

Well Formed XML: Basics, Elements, Child Elements, Attributes: Rules, Sharing attributes, Stylesheet with attributes; XML Namespaces.

UNIT III [12 T]

DTD: Introduction, Definition, DTD Entities, Types of entities, general entities, Parameter Entities; XSL: Basics, XSLT Concepts, XSL and XSLT Softwares, Transforming XML with XSLT.

UNIT IV[12 T]

Schema: Basics, Elements, Types, Attributes, Advanced Concepts; XML Query, XLinks, XPath, XPointer, XML Query, RDF, XHTML

UNIT V [12 T]

XML Processor: Introduction, Components of XML processor, Concept of DOM and SAX, XMLHttpRequest, The XMLHttpRequest Object, Events for the XMLHttpRequest Object, Request Object for XMLHttpRequest, Response Object for XMLHttpRequest.

References:

1. Williamson, *XML: The Complete Reference,* Tata McGraw Hill Edition 2001
2. Elliotte Rusty Harold, *XML Bible*, Wiley, 2001
3. Elliotte Rusty Harold and W. Scott, *XML In A Nutshell*, O'Reilly, 3rd Edition

Fundamentals of Audio, Video and Multimedia

Course Code: GEC4AV12
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To familiarize with various image, audio and video editing software.

Learning outcomes:
- Digitize and manipulate analog data
- Enhance and manipulate images
- Create your own short movies, edit the existing ones.

Course Outline

UNIT I [12 T]

Introduction to multimedia, Concept of hypertext/ hypermedia, applications of multimedia, multimedia authoring, multimedia hardware, Components of multimedia: text, audio, image, video, various file types: JPEG, MPEG audio and video, BITMAP, GIF, SVG, PNG, MIDI.

UNIT II [12 T]

Sound Forge: Introduction of Sound Forge, Sound Forge Interface, Selecting Objects and using Layers, Tooltips ,Creating Projects, Working with audio, Editing Multichannel audio using Markers, Recording and extracting Audio,Editing , Repairing and synthesizing Audio Working With Effects.

UNIT III [12 T]

Introduction of Adobe Premiere, Interface of Adobe Premiere ,Working with Projects, Capturing and Importing Source Clips, Editing Video, Adding Transitions, Mixing Audio, Creating Titles, Superimposing and Compositing Animating a Clip, Applying Effects, Producing Final Video.

UNIT IV [12 T]

FormatFactory: Cutting and extracting fragments from a video, converting video into other formats.

UNIT V [12 T]

Movie Maker : Develop a movie using Movie Maker.

References:

1. Kindle Edition, *Sound Forge Pro 10.0 in Simple Steps*, Dreamtech Press
2. format factory: *https://www.youtube.com/watch?v=BTGiKX8coc8*
3. Adobe Prem Pro CS6 Classro_p1, Adobe Creative Team , *Adobe Premiere Pro CS6 Classroom in a Book*
4. Zakaria Ahmed Sa'ed, *Basic Format Factory*

Scripting using Python

Course Code: SDC4WT13
Contact Hours per Week: 3T +4 P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- Understand basic principles of computers
- Understand the Python programming basics
- To equip the students with an understanding of various data types and control structures
- Understand the object-oriented paradigm, design and development

Learning outcomes:
- Problem solving and programming capability.

Course Outline

UNIT I [12 T+15 P]

Introduction, Features of Python. The Basics- Literal ,Constants,Numbers ,Strings, Identifier, Naming ,Data Types ,Objects, Output . Operators and Expressions - Operators ,Operator Precedence ,Order of Evaluation, Associativity, Using Expressions.

UNIT II [12 T+15 P]

Control Flow- Decision making –if, if …else ,if…elif else. Loops- while, for, break, continue statements .Functions – Definition, parameters, local and global variables, default arguments, keyword arguments, return statement, Recursive functions, Lamda functions.

UNIT III [12 T+15 P]

Modules-built in modules, creating modules, import statement, Namespaces and scope, dir(),reload() functions.File Handling-opening a file,writing to a file,closing a file,file renaming,deleting a file.Directories of Python-methods mkdir(),chdir(),getcwd(),rmdir().

UNIT IV [12 T+15 P]

Data structures- Introduction, List, storing many different data points under a single name.create, subset and manipulate Lists in all sorts of ways.Tuple, Dictionary, Sequences.

UNIT V [12 T+15 P]

Quick introduction to Objects and Classes-creating objects, init() method, Oops principles-encapsulation, data hiding, Inheritance, method overriding, polymorphism. Exception Handling-try….except, try…finally, raising an exception, user defined exception.

References:

1. *Introduction to Programming Using Python*, First Edition by Y. Daniel Liang, Prentice Hall, ISBN-10 0132747189.
2. *Learning Python*, David Ascher and Mark Lutz,O'Reilly Publications.
3. *Python for Dummies*,Aahz Maruch and Stef Maruch.

Web Server Programming using Django

Course Code: SDC4WT14
Contact Hours per Week: 4T
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To attain familiarity with Django application
- To understand the functionalities
- To learn main building blocks of a Django application.

Learning outcomes:
- To learn Django web application framework and get started building Python-based web applications.

Course Outline

UNIT I [14 T]

Introduction to the Django Framework , Design principles, Django Components, Installing Django.

UNIT II [15 T]

Model Layer: Models, Introduction to models,Field Types,Meta options,Model Class, QuerySets, Executing queries,Queryset Method Reference ,Migrations, Introduction to migrations,Writing Migrations.

UNIT III [15 T]

View Layer: The basics, URLConfs, View Functions, Decorators, Request / Response objects, Class Based Views, File Uploads.

UNIT IV [15 T]

Template Layer, Built in tags and filters, Custom tags and filters, Template Loading, rend er_to_response() , The locals() Trick, Subdirectories in get_template( ) , The include Template Tag, Template Inheritance .

UNIT V [16 T]

Forms, Built in fields and widgets, Forms for models, Customizing validation, Security, Performance and Optimization.

References:

1. Jeff Forcier, Paul Bissex, Wesley J Chun,*Python Web Development with Django.*
2. Daniel Rubio ,*Beginning Django: Web Application Development and Deployment with Python*.
3. https://codingblocks.com/classroom-courses/web-development-django.html
4. http://django-book.readthedocs.io/en/latest/

Python Scripting Lab

Course Code: SDC4WT15(P)
Contact Hours per Week: 4P
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks

1. Python Program to Make a Simple Calculator
2. Python Program to Find the Factorial of a Number
3. Python Program to Print the Fibonacci series using recursion
4. Python Program to Check Armstrong Number
5. Python Program to Shuffle Deck of Cards

6. Python Program to Transpose a Matrix
7. Python Program to Add Two Matrices
8. Python Program to Illustrate Different Set Operations
9. Python Program to Check Whether a String is Palindrome or Not
10. Python Program to Check Armstrong Number
11. Python Program to Swap Two Variables
12. Python Program to Check Leap Year
13. Python Program to Accept Three Digits and Print all Possible Combinations from the Digits
14. Python Program to Merge Two Lists and Sort it
15. Python Program to Concatenate Two Dictionaries Into One
16. Python Program to Sum All the Items in a Dictionary
17. Python Program to Count the Number of Words in a Text File
18. Python Program to Read a String from the User and Append it into a File
19. Python Program to Read a File and Capitalize the First Letter of Every Word in the File
20. Python Program to Count the Number of Blank Spaces in a Text File
21. Python Program to Find the Area of a Rectangle Using Classes
22. Python Program to Append, Delete and Display Elements of a List Using Classes
23. Python Program to Create a Class in which One Method Accepts a String from the User and Another Prints it

MiniProject

Course Code: SDC4WT16(Pr)
Contact Hours per Week: 3P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks

Semester V

Introduction to Search Engine Optimization

Course Code: GEC5SE13
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To design web pages which can be listed and noticed by search engines effectively

Learning outcomes:
- A thorough knowledge on optimization techniques

Course Outline

UNIT I [12 T]

Overview: Types of websites, Websites vs Portals, Page Rank, Architecture of websites; SEO: Concept, Needs, Search Engines, Web Traffic, Steps in SEO; Techniques: Black Hat SEO, White Hat SEO.

UNIT II [12 T]

On Page Optimization Techniques: Site Analysis, Meta Tags, sitemaps, Keyword Research, density, Meta Tags creation, Hyperlink optimization, Meta Description and tags optimization, Text Modification Optimization, Image Optimization, Search Engine Optimization

UNIT III [12 T]

Off Page Optimization: Backlinks, blog marketing and commenting, Forums posting, Blog Posting, Search engine submission, XML Site Maps submission, Customer Review Submission, Press Release Submission

UNIT IV [12 T]

Digital Marketing: Digital Display Marketing, Email marketing, mobile marketing, search engine marketing.

UNIT V [12 T]

Social Media Marketing and Advertisements: Introduction to social media, benefits of social media, business promotion with social media, Case studies

References:
1. Eric Enge, Stephan Spencer, Jessie Stricchiola, *The Art of SEO: Mastering Search Engine Optimization*, O Reily, Second Edition
2. Varinder Taprial, Priya Kanwar, *Search Engine Optimization: HandBook of easy tools and tips.*, Pustak Mahal, First edition
3. Ian Dodson, *The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns*, Wiley 2016
4. Seema Gupta, *Digital Marketing*, McGraw Hill Education, 2018

Quality Assurance in Software

Course Code: GEC5QA14
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
    To understand the needs of verification and validation activities in system development
Learning outcomes:
    To be a quality assurance analyst

Course Outline

UNIT I [12 T]

The software quality challenge: The uniqueness of software quality assurance, software, Software errors, faults and failures, Classification of the causes of software errors; Software quality : definition, Software quality assurance: definition and objectives, software quality assurance and software engineering, Software process models

UNIT II [12 T]

Software Quality factors: Need for software quality requirements, Classification of software requirements into software quality factors, Product operation software quality factors, product revision software quality factors, product transition software quality factors, Software compliance with quality factors.

UNIT III [12 T]

SQA components in the project life cycle : Integrating quality activities in the project life cycle: Classic and software methodologies, Factors affecting intensity of quality assurance activities in the development process, Verification validation and qualification.

UNIT IV [12 T]

Software testing: Strategies, software testing classifications, White box testing, Black Box testing. Software testing implementation : The testing process, Test case design, Automated testing, Alpha and beta site testing programs.

UNIT V [12 T]

Case studies on any 3 automated testing softwares currently used.

References:

1. Daniel Galin, *Software Quality Assurance: From Theory To Implementation*, Pearson Education India, 2014
2. Murali Chemuturi, *Mastering Software Quality Assurance: Best Practices, Tools and Techniques for software developers*, J. Ross Publishing, 2010

Entrepreneurship Development

Course Code: GEC5ED15
Contact Hours per Week: 3T
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
- To inculcate in graduates an advanced level of entrepreneurial vision and entrepreneurial will.

Learning outcomes:
- The self confidence in students to actually create and grow entrepreneurial ventures which is established through the mastery of entrepreneurial skills.

Course Outline

UNIT I [15 T]

Entrepreneur and fundamentals of Entrepreneurship: Entrepreneurial competencies-Factors affecting entrepreneurial growth-Role of entrepreneur in economic Development-Challenges of Women Entrepreneurs.

UNIT II [15 T]

Micro small and Medium Enterprises-Legal Framework-Licenses-Role of Promotional Institutions with Special Reference to KINFRA,KITCO,MSME & DICs-Concessions-Incentives and Subsidies.

UNIT III [15 T]

Project Management-Feasibility and Viability analysis-Technical-Financial-Network-Appraisal and Evaluation-Project Report Preparation.

UNIT IV[15 T]

Identification of Business Opportunities in the context of Kerala-Role of ED Clubs-Industrial Policies-Skill Development for Entrepreneurs. Business incubation-meaning-Setting up of Business incubation Centres.

Introduction to Cross Platform Website Applications

Course Code: SDC5WT17
Contact Hours per Week: 4T + 3P
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks

Objectives:
Learn how to build Angular JS,NodeJS and ReactJS applications through a number of hands-on applications.

Learning outcomes:
To make efficient in Building powerful, fast, user-friendly and reactive web apps

Course Outline

UNIT I [15T+15P]

Introduction to Angular JS:Definition & importance of Angular js,MVC Architecture, Providers, Validators, Directives, Expressions, Controllers, Filters, Modules, Services, Dependency injection.

UNIT II [16T+13P]

Introduction to Node.js:Meaning & importance of Node js, Node.js packages. Node.js Modules, Node.js HTTP Module, Node.js File System, Node.js URL Module, Node.js NPM, Node.js Events, Node.js Buffers, Node.js Streams, Node.js Utility Modules.

UNIT III [14T+7P]

Synchronous and Asynchronous Methods:Querying, Reading from and Writing to files, Creating and controlling external processes, Reading and writing Streams of Data, Building HTTP Servers. Building and debugging modules and applications - Testing Modules and Applications, Debugging Modules and Applications.

UNIT IV [16T+14P]

Introduction to React .JS: Environment setup of React.JS, JSX,Components,State,Props Overview, Props Validation, Component API, Component Life Cycle.

UNIT V [14T+11P]

React.JS Essentials: Forms, Events, Refs, Keys, Router, Flux concept, Animations, Higher order Components.

References:

1. Brad Green, Shyam Seshadri ,*Angular JS,*O'Reilly,2013.
2. Accomazzo Anthony, Murray Nathaniel, Lerner Ari, *The Complete Guide to ReactJS and Friends,* Fullstack React,2017.
3. Shelley Powers, *Learning Node: Moving to the Server-Side*, O'Reilly,2016.
4. Greg Sidelnikov*, React. Js Book: Learning React JavaScript Library from Scratch,*Independent Publication,2017.
5. Vipul A M,Prathamesh Sonpatki, *React Js by Example: Building Modern Web Application with React,* Packt Publishing Ltd, 2016.

Ruby on Rails

Course Code: SDC5WT18
Contact Hours per Week: 3T +4P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Objectives:
*   Understand the Rails Framework
*   Harness the speed and ease of developing a Rails application
*   Create and use Ruby in Rails applications
*   Create and use XML in Rails applications
*   Use Ajax in Rails applications

Learning outcomes:
*   Enables students to Build dynamic database-driven web sites

Course Outline

UNIT I[12T+17P]

Introduction to Ruby:Origin and Uses of Ruby, Variables, Scope and Visibility, Constants, Operators , Flow Control , Fundamentals of Arrays , Hashes , Date and Time, Ranges , Iterators ,Methods ,Comments ,Exceptions.

UNIT II[13T+15P]

Object Oriented:Classes and Objects , Modules , Blocks ,File, Input and Output Operations, Ruby Access Modifiers ,Built-in-Functions, Regular Expressions, Multithreading, Ruby/XML,XSLT and XPath.

UNIT III[10T+16P]

Connectivity:Call Back, Database Access, Code blocks with Methods, Sending email application,Metaprogramming, Web services, Ruby/LDAP, Ruby Tools ,Gems for Command Line Apps.

UNIT IV[15T+10P]

Introduction to Rails: Ruby on Rails Directory Structure, Rails Bundler, Bundler Version, Migrations, Purpose of Migrations, Creating Migration file, Rails Router, RESTful Routes, Creating a Route, Resource Routing, Resources on the web, CRUD, Verbs and Actions, Path and URL Helpers, Defining Multiple Resources at the same time, Singular Resources, Controller Namespaces and Routing, Nested Resources, Routing Concerns,Creating Paths and URLs from objects,Adding more RESTful Actions,Non-Resourceful Routes

UNIT V[10T+17P]

Rails Tools :Rails Scaffolding ,Rails Session, Rails File Upload, Rails Layout ,Rails Filters, Rails Testing ,Rails Caching, Rails Validation, Rails AJAX, Rails Database.

References:

1. Michael Hartl, *Ruby on Rails Tutorial: Learn Web Development with Rails,* Addison-Wesley Professional, 2016.
2. Michael Hartl, *Ruby on Rails 3 Tutorial: Learn Rails by Example,* Pearson Education, 2010.
3. David A. Black, *Ruby for Rails: Ruby Techniques for Rail Developers,* Dreamtech Press, 2006.

Cross Platform Website Lab

Course Code: SDC5WT19 (P)
Contact Hours per Week: 0T+3P
Number of Credits: 4
Number of Contact Hours: 60
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Learning outcomes:
    Practical knowledge of Angular JS,Node.JS,React.JS.

Course Outline

1. Demonstrate Angular JS application
2. Demonstrate Angular JS directives
3. Demonstrate Angular JS expressions
4. Demonstrate Angular JS controllers

5. Demonstrate Angular JS filters
6. Demonstrate Angular JS Modules
7. Demonstrate Node. JS application
8. Demonstrate events in Node.JS
9. Demonstrate buffers in Node.JS
10. Demonstrate modules in Node.JS
11. Demonstrate files in Node.JS
12. Demonstrate streams in Node.JS
13. Demonstrate React.JS application
14. Demonstrate props in React.JS
15. Demonstrate flux in React.JS
16. Demonstrate forms in React.JS
17. Demonstrate events in React.JS

Ruby Lab

Course Code: SDC5WT20(P)
Contact Hours per Week: 0T+ 4P
Number of Credits: 5
Number of Contact Hours: 75
Course Evaluation: Internal – 20 Marks + External – 80 Marks
Learning outcomes:

Practical knowledge of Ruby on Rails.

Course Outline

1. Demonstrate Ruby application
2. Demonstrate classes and objects in Ruby
3. Demonstrate Modules with Methods .
4. Demonstrate functions in Ruby
5. Demonstrate flow controls in Ruby
6. Demonstrate files in Ruby
7. Demonstrate hashing in Ruby
8. Demonstrate constants in Ruby
9. Demonstrate exceptions in Ruby
10. Demonstrate email-sending
11. Demonstrate directory structure on Rails
12. Demonstrate Active records on Rails
13. Demonstrate migration on Rails
14. Demonstrate controllers on Rails
15. Demonstrate Scaffolding on Rails

Semester VI

Internship and Project

Course Code: SDC6WT21(Pr)
Number of Credits: 30