

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
UNDER THE
FACULTY OF COMPUTER SCIENCE
SYLLABUS**

(FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2020 – 21 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.

Course: The B. Voc programme focuses upon the skill development of the candidate to prepare them as industry-ready professionals. The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components.

The UG programme shall include General Education Component (Code GEC), Core courses (Code SDC) and Audit courses (Code E).

General Education Components

- The general education component provides emphasis to Communication skills, Presentation skills, 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.

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- 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).

Credits:

Ability enhancement courses/ Audit courses: These are courses which are mandatory for a programme but not counted for the calculation of SGPA or CGPA. There shall be one Audit course each in the first four semesters. These courses are not meant for class room study. The students can attain only pass (Grade P) for these courses. At the end of each semester there shall be an examination conducted by the college from a pool of questions (Question Bank) set by the University. The students can also attain these credits through online courses like SWAYAM, MOOC etc (optional). The list of passed students must be sent to the University from the colleges at least before the fifth semester examination. The list of courses in each semester with credits is given below.

Course with credit	Semester
Environment Studies – 4	1
Disaster Management – 4	2
*Human Rights/Intellectual Property Rights/ Consumer Protection - 4	3
*Gender Studies/Gerontology- 4	4

* Colleges can opt any one of the courses.

Grace Marks: Grace Marks may be awarded to a student for meritorious achievements in co-curricular activities (in Sports/Arts/ NSS/NCC/ Student Entrepreneurship) carried out besides the regular class hours. Such a benefit is applicable and limited to a maximum of 8 courses in an academic year spreading over two semesters. No credit shall be assigned for such activities. In addition, maximum of 6 marks per semester can be awarded to the students of UG Programmes, for participating in the College Fitness Education Programme (COFE).

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

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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 project/ internship.

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.

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- The candidate should remit the fees prevailing at that time.
- B. Voc governing council will take the decision regarding the re joining.

College Transfer

College transfer is not allowed in any circumstances.

The purpose of B.Voc programmes is to generate and employ the skilled workforce for national development. Therefore, the B.Voc programme will not be considered equivalent to the general academic programmes, which are intended for imparting a basic knowledge component to the student. However, for a qualified candidate opportunity for the pursuit of higher education shall not be declined and their eligibility for admission to higher courses may be treated by the individual Boards of Studies based on merit and relevance.

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 applicants must clear an entry level examination set by the college based on mathematical aptitude, logical reasoning, communication skills, and general ICT awareness.
- 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 B.Voc is the same as that of the regular UG programmes conducted in

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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 the 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)

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

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

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.

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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 the 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 to 75.9 %	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 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 lifetime 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

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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 the 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:

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Section	Total No of Questions	No. of Questions to be answered	Marks for each question	Total marks
A: VeryShort/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.

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- 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

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

- 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

$$\text{CGPA} = \frac{\text{Total credit points obtained in six semesters}}{\text{Total credits acquired (180)}}$$

- 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

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 students
- 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

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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 Semester	Certificate	1)Graphic Designer
5	36	24	60	Two Semesters	Diploma	1)Media Developer NASSCOM QP: SSC/Q0504 2)Web Developer NASSCOM QP: SSC/Q0503 3)Web Designer
6	72	48	120	Four Semesters	Advanced Diploma	1)Web Application developer 2)SEO specialist
7	108	72	180	Six Semesters	B.Voc Degree	1) UI Developer NASSCOM QP: SSC/Q0502 2)Cross Platform Application Developer

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Course Code	Title	Credits	T/P	Type
Semester I				
GEC1EG01	A01 Transactions: Essential English Language Skills	4	T	General
GEC1ML02	Malayalam – MAL1A07or	4	T	
GEC1HD02	Hindi - HIN1A07			
GEC1CF03	Computer Fundamentals	4	T	Vocational
SDC1WT01	Introduction to Adobe Photoshop & Illustrator	5	T	
SDC1WT02	Basics of HTML	4	T	
SDC1WT03(P)	Adobe Photoshop & Illustrator Lab	4	P	
SDC1WT04(P)	HTML Lab	5	P	
Semester II				
GEC2EG04	A02 Ways With Words: Literatures in English	4	T	General
GEC2ML05	Malayalam – MAL1A08or	4	T	
GEC2HD05	Hindi – HIN1A08			
GEC2DH06	Theory of Domain & Hosting	4	T	Vocational
SDC2WT05	Introduction to Bootstrap	5	T	
SDC2WT06	Advanced HTML and CSS	4	T	
SDC2WT07(P)	Advanced HTML and Bootstrap 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	

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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 fundamental ideas 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 equipments, including both hardware and software.
- Understanding basic concepts of operating systems, networking and cloud computing.

Course Outline

UNIT I [12 T]

Introduction to Computers: Characteristics of Computers, Generations of Computers, Classifications of Computer; Data Representation: Number System(Decimal, Binary, Octal), Conversion from Decimal to Binary, Octal; Computer Languages: Machine Language, Assembly Language, High-Level Language; Language Translators: Assembler, Compiler, Interpreter, Linker and Loader; Features of Good Language; Basics of Computer Organization: Von Neumann Model; Memory Units: Memory Hierarchy, Primary Storage, Cache Memory, Registers, Secondary Storage Devices.

UNIT II [12 T]

Hardware Components: SMPS, Motherboard, Add-on Cards, Ports, Memory, Adapters, Network cables, Input Devices, Output Devices, Storage Devices; Software: System Software, Utility Software, Application Software.

UNIT III [12 T]

Operating System: Objectives, Functions; Types 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.

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UNIT V [12 T]

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

References:

1. Ashok Arora, *Computer Fundamentals and Applications*, Vikas Publishing House, 2015
2. D. A. Godse & A. P. Godse, *Digital Computer Fundamentals*, Technical Publications, 2007
3. Anita Goel, *Computer Fundamentals*, Pearson Education India, 2010
4. Sinha P. K., *Computer Fundamentals*, BPB Publications
5. Ram B., *Computer fundamentals*, New Age International Pvt, Ltd Publishers
6. Rajaraman V & 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 understand the basic tools in Adobe Photoshop and Illustrator.
- Equip students to start making professional web graphics.

Learning outcome:

- Efficiently manage web graphics

Course Outline

UNIT I [15 T+ 12 P]

Introduction to Photoshop: Photoshop Environment, Opening Images, Moving Images; 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; Tool Box: Painting Tools; Basic Selections: Elliptical Marquee Tool, Magic Wand & Free Transform Tool, Regular & Polygonal Lasso Tools, Pen Tool, Magnetic Lasso, Quick Selection Tool & Refine Edge, Modifying Selections, Brush Settings

UNIT II [15 T+ 12 P]

Layers: Creating, Selecting, Linking & Deleting Layers, Locking & Merging Layers, Copying Layers, Layer Styles, Filling & Grouping Layers; Blending Modes, Filling and Stroking,

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Creating and Modifying Text, Channels and Masking, Painting in Photoshop, Basic Photo Correction, Photo Retouching and Repairing, Creating Special Effects.

UNIT III[15 T + 12 P]

Introduction to Adobe Illustrator: Raster vs Vector Images, Work Area, Tools Panel, Control Panel, Fill and Stroke; Basic Shape Tools, Selecting and Aligning Objects: Selection Tools- Selection Tool, Direct Selection Tool, Magic Wand Tool, Lasso Tool; Objects: Selecting, Aligning, Arranging, Hiding, Reshaping; Working with Groups of Objects, Screen Modes, Setting Preferences.

UNIT IV[15 T + 12 P]

Working with Artboards: Adding, Editing, and Reordering; Transforming Objects: Scaling, Reflecting, Rotating, Distorting, Shearing, Positioning, Different Ways of Transforming Objects, Envelopes, Clipping Mask; Rulers and Guides; Pen and Pencil Tools: Drawing, Selecting, and Editing; Color and Painting: Color Models, Spot and Process Colors, Color Picker, Color Panel, Color Guides, Swatches, Swatch Libraries; Painting: Fills, Strokes, Live Paint Groups, Brushes, Gradients, Meshes, Patterns.

UNIT V[15 T + 12 P]

Type and Text: Creating, Entering and Formatting, Spelling and language dictionaries, Character Panel, Formatting Paragraphs, Tabs Panel; Special Effects and Filters: Appearance Attributes, Applying Effects - Stylize, Distort and Transform, Warp, Rasterization; Web graphics, Working with Symbols, Automating tasks.

References:

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 and 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

Objective:

- To be acquainted with basic skills of web designing.

Learning outcome:

- Understand HTML and basics of CSS & JavaScript.

Course Outline

UNIT I [12 T+10 P]

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

UNIT II [12 T+15 P]

Links: Introduction, Relative Links, Absolute Links, Link Attributes, Link within a Document using Bookmarks.

UNIT III [12 T+15 P]

Images: Adding an Image, Using Images as Links, Setting Background Image, Specifying Image Size, Imagemaps, Image Alignment.

UNIT IV [12 T+15 P]

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

UNIT V [12 T+20 P]

Forms and Controls: Input elements, Other Form Elements.

References:

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

Adobe Photoshop and Illustrator 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

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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 Ordered List tag
7. Illustration of Unordered List tag
8. Illustration of Nested tag
9. Illustration of Image 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

Objective:

- To obtain through knowledge on Domain Name System Terminology and Web hosting facilities.

Learning outcome:

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

Course Outline

UNIT I [12 T]

Introduction to Web: Client-Server Model; Characteristics of a Website, Role of ICANN & IANA, Introduction to Domain Name System Terminology: Components, Concepts; Introduction to Domain Name System: Domain, Domain Name, IP Address, Top-Level Domain, Sub Domain, Fully Qualified Domain Name, Name Servers, Root Servers, TLD Servers, Domain-Level Name Servers, Resolving Name Server.

UNIT II [12 T]

Addressing:IP Address Classes; Master-slave Architecture, Zones and Zone Files, Zone Transfer, Certificate Authorities (CAs), Digital Certificates, Record Types: SOA Records, A Records,AAAA Records, CNAME Records, MX Records, NS Records, PTR Records, CAA Records, TXT Records; Domain Name Configuration Steps.

UNIT III [12 T]

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

UNIT IV [12 T]

Privacy: Data Privacy, Domain Privacy; Domain Security: Domain Squatting, Hijacking, Spoofing, Prevention Methods; Website Security: Issues, Risks, Cyberbullying; Web Protocols: TCP, UDP, SSH, HTTP, HTTPS, SMTP, TELNET, FTP, SFTP, SSL.

UNIT V [12 T]

FTP Client Softwares: Filezilla, Cyberduck, CuteFTP; Cloud Web Hosting Providers: AWS, DreamHost, Google Cloud; Green hosting.

References:

1. Peter Pollock, *Web hosting for dummies*, Wiley 2013
2. WimBervoets, *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

Objective:

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

Learning outcome:

- To build auto responsive websites

Course Outline

UNIT I [15 T]

Introduction to Bootstrap: Bootstrap Development, Functionalities, Advantages, Uses; Responsive Web Design, Building Responsive Websites with Bootstrap, Basic Folder Structure, Simple Responsive Webpage, Layouts, Containers.

UNIT II [15 T]

Bootstrap CSS : Typography: Headings, Lead, Emphasis classes, Address, BlockQuote, Lists; Tables, Forms: Different types of forms, Form Control Sizing; Colors.

UNIT III [15 T]

Bootstrap Components: Buttons, Images, Tables, Dropdowns, Navs, Glyphicons, Navs, Navbar, Breadcrumbs, Pagination, Alerts, Progress Bars, Spinners, Cards, Jumbotron.

UNIT IV [15 T]

Bootstrap Grid System: Basic Grid System, Grid Classes; Auto Layout Columns, Types of Grids: Stacked to Horizontal, Extra Small, Small, Medium, Large and Extra Large Grids.

UNIT V [15 T]

BS JS – Modal dialogs, Alert, Button, DropDown, Tooltip, Popover, Collapse, Accordion, Carousel Scrollspy, Themes:Using Built-in themes, Building Custom themes.

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

Objective:

- To develop the skill and knowledge for Web page designing.

Learning outcome:

- Efficiently design a website.

Course Outline

UNIT I[12 T+10 P]

Structuring Documents for the Web: Introducing HTML, Attributes; Basic Text Formatting, Lists: Ordered List, Unordered List, Nested List; Links and Navigation, Images: Adding Images; Attributes, Images as Links; Tables: Basic Table Elements and Attributes, Nested Tables; Forms: Attributes, Controls, HTTP get, HTTP post methods.

UNIT II[12 T+15 P]

Frames: Frame Element, Frameset Element, Links between Frames, Nested Framesets, Inline or Floating Frames; HTML5: Semantic & Non-Semantic tags; Audio & Video: Adding Flash, Video and Audio; Canvas, Geolocation, Drag and Drop, Web Storage, Web Workers.

UNIT III[12 T+15 P]

XHTML: Introducing XHTML, HTML vs XHTML; XHTML Syntax; DOCTYPEs, Attributes, Events, XHTML Validation.

UNIT IV [12 T+15 P]

Cascading Style Sheets: Introduction, Elements, Attributes, Properties, Controlling Text, Selectors; Box Model.

UNIT V[12 T+20 P]

JavaScript: Introduction, Variables, Operators, Functions, Conditional Statements, Looping, Events, Form Validation.

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References:

1. Shay Howe, *Learn to Code HTML and CSS: Develop and Style Websites*, New Riders, 2014
2. Kogent, *Learning Solutions Inc, -HTML 5 in simple steps*
3. Steven M. Schafer, *HTML, XHTML, and CSS Bible*, 5ed, Wiley India, 2004
4. John Duckett, *Beginning HTML, XHTML, CSS, and JavaScript*, Wiley India, 2011
5. Ian Pouncey, Richard York, *Beginning CSS: Cascading Style Sheets for Web Design*, Wiley India, 2005

Advanced HTML and BootStrapLab

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 to add audio and video
3. Illustration of Forms and attributes
4. Illustration of Frames and Frameset
5. Illustration of inline frames
6. Illustration of CSS properties and attributes
7. Formatting text in CSS
8. Illustration of Selector
9. Illustration of BoxModel
10. A program to illustrate Form validation
11. Illustration of a basic BootStrap program
12. Illustration of BootStrap typography
13. Illustration of different types of forms in BootStrap
14. Illustration of BootStrap components
15. Illustration of JavaScript classes in BootStrap

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

Objective:

- To understand the changes in the software version and ways to manage it.

Learning outcome:

- To be proficient in source control and build.

Course Outline

UNIT I [12 T]

Basic Concepts of Version Control: Repository, Versioning Models; Introduction to Source Code Management: Goals, Principles, Core Concepts (Baselines, Sandboxes and Workspaces, Branching, Deltas, Changesets).

UNIT II [12 T]

Introduction to Subversion: History, Features, Architecture, Components; Branching and Merging: Basics, Using Branches, Copying Changes between Branches, Common Use-Cases for Merging, Switching a Working Copy, Tags, Branch Maintenance.

UNIT III [12 T]

Repository Administration: Strategies for Repository Deployment, Creating and Configuring Repositories, Repository Maintenance, Moving and Removing Repositories.

UNIT IV [12 T]

Server Configuration: Basic Concepts, Choosing a Server Configuration, svnserve, httpd (Apache HTTP Server), Path-Based Authorization.

UNIT V [12 T]

Subversion Command-Line, Advanced Subversion Commands:svn, svnadmin, svnlook, svnsync, svndumpfilter, svnversion, mod_dav_svn Configuration Directives, mod_authz_svn; Subversion properties.

References:

1. William A.Nagel, *Subversion Version Control: Using the Subversion Version Control System in Development Projects*, First edition, Prentice Hall.

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2. C. Michael Pilato, Ben Collins-Sussman, Brian W. Fitzpatrick, *Version Control with Subversion: Next Generation Open Source Version Control*, Second Edition, O'Reilly Media.

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

Objective:

- To learn basic arithmetic, number sequences and simple mathematics.

Learning outcome:

- Skills in basic arithmetic, number sequences and simple mathematics.

Course Outline

UNIT I [15 T]

Sets: Set Operations, Venn Diagrams; Elements of Coordinate System, Matrices: Operational Rules, Matrix Multiplication, Inversion of Square Matrices of not more than 3rd Order, Solving System of Simultaneous Linear 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 [15 T]

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 [15 T]

Statistics: Meaning, Definitions, Scope, 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 [15 T]

Measures of Central Tendency: Arithmetic Mean, Median, Mode, Geometric and Harmonic Mean; Measures of Variation and Standard, Mean and Quartile Deviations, Skewness and

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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*, S.Chand
2. Dr. A K Arte & R V Prabhakar, *A textbook of Business Mathematics*
3. Sancheti and V.K.Kapoor, *Business Mathematics*, Sultan Chand and Sons
4. Gupta S.P, *Statistical Methods*, Sultan Chand & Sons, 2011
5. Navaneethan P, *Business Mathematics*, Sultan Chand & Sons

Web Programming Using PHP and JavaScript

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 the internet.

Learning outcomes:

- Better knowledge in developing Javascript applications.
- Build an understanding of the web development using PHP.

Course Outline

UNIT I [12 T +15 P]

JavaScript: Introduction, Functions, Units, Hoisting, Strict mode in JavaScript; Objects in JavaScript, JavaScript Events, Strings and Numbers, Arrays, Date Objects, JavaScript Errors.

UNIT II [12 T +15 P]

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: XML HTTP Request Object, AJAX Request, Response, XML file.

UNIT III [12 T +15 P]

PHP: Introduction, Server Side Programming, Role of Web Server Software; Including PHP Script in HTML: head, body, external. Comments, Illustration of Data Types, Variables and

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Scope, echo and print. Operators: Arithmetic, Assignment, Relational, Logical; Conditional Statements, Loops, break and continue, User Defined Functions.

UNIT IV [12 T +15 P]

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

UNIT V[12 T +15 P]

PHP &PostgreSQL: Features of PostgreSQL, Data Types, PostgreSQLcommands:CREATE DATABASE, CREATE TABLE, DESCRIBE TABLE (\d table_name or 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 PostgreSQL database in webpage.

References:

1. David Flanagan, *JavaScript: The Definitive Guide*, O'Reilly, Sixth Edition
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*, John Wiley and Sons, 2014
4. IvelinDemirov, *Learn JavaScript VISUALLY*, Third edition (27 June 2014)
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:

- Basic understanding of DBMS concepts
- Learn RDBMS concepts with MySQL database language.

Learning outcome:

- Good knowledge in Database design and MySQL database development.

Course Outline

UNIT I [15 T + 12 P]

Introduction to DBMS: Basic Concepts, 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): Attributes & Keys(Primarykey, Foreign key), Weak Entity Set, Enhanced Entity-Relationship(EER).

UNIT II [15 T+ 12 P]

Relational Model: Basic Concepts, Relational Algebra and Operations; Functional Dependencies, Normal forms: 1NF,2NF,3NF, Boyce-Codd Normal Form; Database Design.

UNIT III [15 T+ 12 P]

Introduction to MySQL Database: Data Definition Language(DDL) commands: Table Creation and Alteration, Constraints, View, Index, Cluster, Sequence, Synonym.

UNIT IV [15 T+ 12 P]

SQL Data Manipulation Language (DML) commands: Insertion, Deletion, Updation, Data Retrieval; Functions: Numeric, Data, Character, Conversion, Group Functions with having clause; Set Operators, Sorting, Sub-Query, Joins: Single join, Self join, Outer join; Date Functions.

UNIT V [15 T+ 12 P]

Transaction Control Language (TCL): Basic commands (Grant, revoke, commit, savepoint), Usage of Triggers, Functions and Procedures using PL/SQL; Establishing Database Connectivity.

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. Elmasri, Shamkant B. Navathe, *Fundamentals of Database Systems*, 7th Edition

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

JAVA SCRIPT

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

PHP

7. Display the Fibonacci series up to a given number.
8. 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%	

1. Gross= basic + HRA + conveyance + extra
 2. Net = gross – income tax
9. 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.

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10. 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.
11. Write a program to demonstrate session.
12. 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)
 1. Display the contents using for each statement.
 2. Display the array in a sorted order.
 3. Display the array without the duplicate elements
 4. Remove the last element and display
 5. Display the array in reverse order
13. Create a PHP program to display the biodata of a person in a table format, by reading the personal details using an HTML page.
14. 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.
15. Write a PHP program for insert, delete, update and display operation on account table. The account table contains fields such as accountno, name and amount.
16. 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.
17. 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

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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:

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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.

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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.

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- 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

Objective:

- To get an understanding of the XML concepts

Learning outcome:

- Proficient in XML concepts and syntax

Course Outline

UNIT I [12 T]

XML: Introduction, 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: Basics, 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, RDF, XHTML.

UNIT V [12 T]

XML Processor: Introduction, Components of XML Processor, Concept of DOM and SAX, XMLHttpRequest, 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

Objective:

- 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]

Multimedia: Introduction, 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, 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]

Adobe Premiere: Introduction, Interface, Working with Projects; Capturing and Importing Source Clips, Editing Video, Adding Transitions, Mixing Audio, Creating Titles, Superimposing, 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>

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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 students with an understanding of various data types and control structures
- Understand the object-oriented paradigm, design and development

Learning outcome:

- Problem solving and programming capability.

Course Outline

UNIT I [12 T+ 15 P]

Python:Introduction, Features, Literal, Constants, Numbers, Strings, Identifiers, Naming, Data Types, Objects; Operators and Expressions : Operators, Operator Precedence, Order of Evaluation, Associativity.

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, Lambda functions.

UNIT III [12 T+ 15 P]

Modules:Built-in Modules, Creating Modules, import Statement, Namespaces,Scope, dir(),reload() functions;File Handling:Opening a File,Writing to a File,Closing a File,File Renaming,Deleting a File;Directory Methods: mkdir(),chdir(),getcwd(),rmdir().

UNIT IV [12 T+ 15 P]

Data structures:Introduction, List(Storing many different data points under a single namecreate, subset and manipulate Lists),Tuple,Dictionary,Sequences.

UNITV [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. Y. Daniel Liang,*Introduction to Programming Using Python*, First Edition, Prentice Hall, ISBN-10 0132747189
2. David Ascher and Mark Lutz, *Learning Python*, O'Reilly Publications
3. AahzMaruch and StefMaruch, *Python for Dummies*,Wiley Publishing Inc, 2006

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 outcome:

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

Course Outline

UNIT I [14 T]

Django: Introduction, Django Framework, Design principles, Django Components, Installing Django.

UNIT II[15 T]

Model Layer: Models, Field Types, Meta Options,Model Class, QuerySets, Executing Queries,Queryset Method Reference,Migrations:Introduction,Writing Migrations.

UNIT III [15 T]

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

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UNIT IV [15 T]

Templates:Template Layer, Built in Tags and Filters, Custom Tags and Filters, Template Loading, render_to_response(), The locals() Trick, Subdirectories in get_template(), include Template Tag, Template Inheritance .

UNIT V [16 T]

Forms:Basics, 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*, Addison Wesley
2. Daniel Rubio,*BeginningDjango: Web Application Development and Deployment with Python*, Apress, First Edition

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

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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

Objective:

- To design web pages to be listed and noticed by search engines effectively

Learning outcome:

- 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, e-mail 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. VarinderTaprial, PriyaKanwar, *Search Engine Optimization: HandBook of easy tools and tips.*, PustakMahal, 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

Objective:

- To understand the needs for verification and validation activities in system development

Learning outcome:

- To be a quality assurance analyst

Course Outline

UNIT I [12 T]

Fundamentals of Software Quality: Software, Software Errors, Faults and Failures, Classification of the Causes of Software Errors, Definition of Software Quality; Software Quality Assurance: Definition, Objectives, Uniqueness of Software Quality Assurance, 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, Qualification.

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UNIT IV [12 T]

Software Testing: Strategies, Classifications, White Box Testing, Black Box Testing; Software Testing Implementation: 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. MuraliChemuturi, *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

Objective:

- To inculcate an advanced level of entrepreneurial vision and entrepreneurial will.

Learning outcome:

- 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 the Entrepreneur in Economic Development, Challenges of Women Entrepreneurs.

UNIT II [15 T]

Enterprises: 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]

Opportunities: 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.

References:

1. A David, *Entrepreneurial Megabucks*; John Wiley and Sons, New York
2. Srivastava, S.B., *A Practical Guide to Industrial Entrepreneur*, Sultan Chand and Sons, New Delhi

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

Objective:

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

Learning outcome:

- 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.

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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, ShyamSeshadri, *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 outcome:

- Enable students to Build dynamic database-driven web sites

Course Outline

UNIT I[12 T+15 P]

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[13 T+15 P]

Object Oriented Program: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[10 T+15 P]

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[15 T+15 P]

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[10 T+15 P]

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 outcome:

Practical knowledge of Angular JS,Node.JS,React.JS.

CourseOutline

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: 4P

Number of Credits: 5

Number of Contact Hours: 75

Course Evaluation: Internal – 20 Marks + External – 80 Marks

Learning outcome:

Practical knowledge of Ruby on Rails.

Course Outline

1. Demonstrate Ruby application
2. Demonstrate classes and objects in Ruby

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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