For Batch 2016-17 Onwards

SCHEME OF EXAMINATION

for

BACHELOR OF VOCATION

In

SOFTWARE DEVELOPMENT

5th SEMESTER and 6th SEMESTER

Offered by

University School of Information, Communication & Technology

Guru Gobind Singh Indraprastha University
Dwarka, Delhi – 110078 [INDIA]

www.ipu.ac.in
The Scheme and Syllabus for B.Voc (Software Development) (3rd Year) has been approved in 45th BOS Meeting of USICT held on 16th March, 2017 and 43rd Academic Council Meeting held on 25th May, 2017. The Scheme and Syllabus is applicable for the batch admitted in the Academic Session 2016-17 onwards, w.e.f., 1st August, 2018.

NOMENCLATURE OF CODES GIVEN IN THE SCHEME OF B.VOC

1. ET stands for Engineering and Technology.
2. V stands for Vocation.
3. MC stands for Mobile Communication.
4. SD stands for Software Development.
5. AE stands for Automobile.
6. CE stands for Consumer Electronics.
7. PT stands for Printing Technology.
8. CT stands for Construction Technology.
10. PD stands for Power Distribution Management.
11. ID stands for Interior Design.
12. AA stands for Applied Arts.
13. CS stands for Computer Science.
14. MS stands for Management Studies.
15. EN stands for Environmental Engineering.
16. PH stands for Physics.
17. AS stands for Applied Science.
18. HS stands for Humanities and Social Sciences.
19. SS stands for Social Services.
20. L/T stands for Lecture and Tutorial.
21. P stands for Practicals.
23. P/D stands for Practical/Drawing.
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### BACHELOR OF VOCATION
(SOFTWARE DEVELOPMENT)
FIFTH SEMESTER EXAMINATION
(LEVEL-VII)

<table>
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<tr>
<th>Paper Code</th>
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<th>T/P</th>
<th>Credits</th>
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*Non University Examination System (NUES)*

**NOTE:**
There are five industrial trainings to be carried out by the student(s) in B.Voc course. Industrial Trainings I, III and V will be with weightage of two credits each. These trainings are to be carried out during winter vacations for the duration of two weeks. Industrial Trainings II and IV will be with weightage of four credits each. These trainings are to be carried out during summer vacations for the duration of four to six weeks. These trainings may be done from industry/Skill Knowledge Providers (SKPs) /Sector Skill Councils (SSCs) / Training Centers/Institutes. Student should submit training report during evaluation. Industrial Training done at the end of the semester will be evaluated in the subsequent semesters.
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### BACHELOR OF VOCATION
**SOFTWARE DEVELOPMENT**

**SIXTH SEMESTER EXAMINATION**
**(LEVEL-VII)**

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#*The student will submit a synopsis at the beginning of the semester for approval from the departmental committee in a specified format, thereafter he/she will have to present the progress of the work through seminars and progress reports. Seminar related to major project should be delivered one month after staring of Semester. The progress will be monitored through seminars and progress reports. Students may be allowed to do Industrial Major Project on-site during 5 days in a week and class work should be completed in 2 working days in the respective institution. If in case, the classes are held during Saturday/Sunday then faculty should be given off in lieu of Saturday/Sunday.

**For Award of Diploma:**
1. The total number of the credits of the Diploma (Software Development) Programme = 63
2. Student shall be required to appear in examinations of all courses. However, to award the Diploma (Software Development) a student shall be required to earn a minimum of 60 credits.

**For Award of Advanced Diploma:**
1. The total number of the credits of the Advance Diploma (Software Development) Programme = 126
2. Student shall be required to appear in examinations of all courses. However, to award the Advanced Diploma (Software Development) a student shall be required to earn a minimum of 120 credits.

**For Award of B. Voc Degree:**
1. The total number of the credits of the B. Voc. (Software Development) Programme = 192
2. Student shall be required to appear in examinations of all courses. However, to award the degree a student shall be required to earn a minimum of 180 credits.
TECHNICAL ENGLISH
(Common to all Disciplines)

Paper Code: ETVHS-701
Paper: Technical English

INSTRUCTIONS TO PAPER SETTER:
MAXIMUM MARKS: 75
1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1 rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objectives:
- To equip students to recognize, explain, and use the rhetorical strategies and the formal elements of specific genres of technical communication, such as technical abstracts, data based research reports, instructional manuals, technical descriptions etc.
- To help students understand the process of collection, analysis, documentation, and reporting of research clearly, concisely, logically, and ethically and understand the standards for legitimate interpretations of research data within scientific and technical communities.
- To initiate students into critical and creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information towards meaningful and effective communication.
- To help students understand ethical considerations in technical and professional writing, realizing the consequences of various communication acts.

Learning Outcomes: Upon successful completion of the course the student shall be able to:
- Understand and demonstrate composing processes through invention, organization, drafting, revision, editing, and presentation as evidenced in satisfactory completion of all the written, visual, web-based, and oral discourses to be submitted in this course.
- To recognize and use the rhetorical and stylistic elements necessary for the successful practice of scientific and technical communication;
- Create various products most frequently used in scientific and technical communication.
- Develop ethical problem-solving communication skills in professional situations.

UNIT-I
Technical Writing: Definition, Purpose and Characteristics of Technical Writing.
Technical Writing Skills: Methods and means of the Pre-writing stage, the Writing Stage and the Post-writing Stage.

UNIT-II

UNIT-III
Writing and Designing for Electronic Media: Use of Internet as a Writing tool; designing and writing for multimedia applications and the World Wide Web.

UNIT-IV
Research and Writing Ethics: Explaining Forms and Consequences of Plagiarism, Introduction to Intellectual Property Right and Copy Right Laws.

Text Book(s):

Reference Book(s):

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ADVANCED COMPUTER NETWORKS

Paper Code: ETVSD-701
Paper: Advanced Computer Networks

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3 0 3

INSTRUCTION TO PAPER SETTERS

MAXIMUM MARKS: 75

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2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objectives and Learning Outcomes: After learning the course the students should have understanding of various IP protocols wireless LAN. They should know types of encryptions used for network security.

UNIT-I
Overview of Networking, TCP/IP and OSI Layer
Application Layer: DHCP, DNS, Electronic Mail: Different Scenarios, MTA, SMTP-POP and IMAP.
TCP: TCP Services & Features, TCP Segment Format, TCP Connection and scenarios, Flow control in TCP, Error Control.

UNIT-II

UNIT-III
Wireless LAN (IEEE 802.11): Infrared vs. Radio transmission, Infrastructure and Ad hoc Networks: System architecture, Protocol architecture, Physical layer, Medium Access Control layer, MAC management
Bluetooth: User Scenarios, Physical Layer, MAC layer, networking

UNIT-IV
Optical Networking: Introduction to Optical Networking, SONET / SDH Standard, DWDM
Network Security: Introduction, Traditional Ciphers, Modern ciphers (DES Algorithm), asymmetric ciphers, RAS Cryptosystem, Digital Signature, concepts of Firewalls.

Textbooks:

Reference Books:
MULTIMEDIA AND ANIMATION
(Core Elective-II)

Paper Code: ETVSD-703
Paper: Multimedia and Animation

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INSTRUCTION TO PAPER SETTERS

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MAXIMUM MARKS: 75

UNIT-I

Introduction to Multimedia: Media and data stream, Multimedia System and its properties, Use of Multimedia, Delivering Multimedia, Hardware and software requirements for multimedia product development, Multimedia Development Team.

Amuthoring System: Authoring Tools, Categories of Authoring tools, Need of Authoring tools.

UNIT-II


Basic concepts of images and video. Digital image representation, Image data format, File system for images, Importance of Video in multimedia, how video worked and displayed, File formats.

UNIT-III

Compression Techniques: Lossless and Lossy compression, Run length coding, Statistical Coding, Transform Coding, JPEG, MPEG, Text compression using static Huffman technique, Dynamic Huffman Technique, Arithmetic Technique.

UNIT-IV

Introduction to animation. Basic Terminology &techniques, tweening & morphing, Motion Graphics 2D & 3D animation, Key frame, reactive animation, path animation, Skeleton animation.

Dynamics: Soft bodies, Rigid bodies and its usages in the scene.


Special Effects: Shading & Texturing Surfaces, Lighting, Special effects.

Text Book(s):

Reference Books:
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### Objectives and Learning Outcomes:*

- To know the basics of ER, business modules of ERP and strategic importance of ERP.
- To understand the key implementation issues of ERP.
- To be aware of some popular products in the area of ERP.

### UNIT-I


[T1] [T2] [No. of Hrs.: 15]

### UNIT-II

**ERP Implementation**: ERP Implementation Lifecycle, Implementation Methodology, Hidden Costs, Organizing the Implementation, Vendors, Consultants and Users, Contracts with Vendors, Consultants and Employees, Project Management and Monitoring.

[T1] [T2] [No. of Hrs.: 10]

### UNIT-III

**ERP Market**: Introduction, SAP AG, Baan Company, Oracle Corporation, People Soft, JD Edwards World Solutions Company, System Software Associates, Inc. (SSA), QAD, A Comparative Assessment and Selection of ERP Packages and Modules, ERP implementation lifecycle, issues in implementing ERP packages, pre-evaluation screening, package evaluation, project planning phase, gap analysis, reengineering, configuration, implementation, team training, testing, going live, end-user training, post implementation (Maintenance mode).

[T1] [T2] [No. of Hrs.: 10]

### UNIT-IV

**Vendors, Consultants and Users**: In-House Implementation - pros and cons, vendors, consultants, end user, Future Directions in ERP, New markets, new channels, faster implementation methodologies, business modules and BAPIs, convergence on windows NT, Application platform, new business segments, more features, web enabling, market snapshot.

[T1] [T2] [No. of Hrs.: 10]

### Text Book(s):*


### References Books:

SOFTWARE PROJECT MANAGEMENT
(Core Elective-II)

Paper Code: ETVSD-707
Paper: Software Project Management

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Objectives and Pre-requisites: Software Project Management provides to the students on how to evaluate and assess the projects and to find the cost of the project using cost benefit evaluation techniques. It also discusses the risks involved in the project and the appropriate strategies for minimizing potential risks.

To produce an activity plan for a project and to estimate the overall duration of the project by analyzing the risks involved in it.


UNIT-I
Introduction: Introduction to software project management and control. Whether software projects are different from other types of projects. The scope of project management. The management of project life cycle. Defining effective project objectives where there are multiple stakeholders. Software Tools for Project Management.

Project Planning: Creation of a project plan - step by step approach, the analysis of project characteristics in order to select the best general approach, Plan Execution, Scope Management, Use of Software (Microsoft Project) to Assist in Project Planning Activities.

UNIT-II
Project Scheduling: Time Management, Project Network Diagram, Critical path Analysis, PERT, Use of Software (Microsoft Project) to assist in Project Scheduling.


UNIT-III
Project Quality Management: Stages, Quality Planning, Quality Assurance, Quality Control, Quality Standards, Tools and Techniques for Quality Control.


UNIT-IV
Project Risk Management: Common Sources of Risk in IT projects, Risk Identification, Risk Quantification, Risk Response Development and Control.

Project Procurement Management: Procurement Planning, Solicitation, Source Selection, Contract Administration.

Text Books:

REFERENCES:

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MOBILE APPLICATION DEVELOPMENT
(Core Elective-III)

Paper Code: ETVSD-709
Paper: Mobile Application Development

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3 0 3

INSTRUCTION TO PAPER SETTERS

MAXIMUM MARKS: 75

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2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objectives and Pre-requisites:
The emergence of a new generation of highly-capable mobile devices and platforms such as the Apple iPhone and Google Android has opened up new opportunities for application developers. However, mobile development differs from conventional desktop development in that mobile devices operate in a constrained world with smaller screens, slower network connections, as well as limited memory and processing power.

Programming experience is required: Java Programming concepts.

Learning Outcomes:
The course will be hands on and project based. We will examine the development models for both the Apple iPhone and Google Android. We’ll be building sample apps for the Android. Then participants will select either the Apple iPhone or Google Android for their final deliverable, and work in groups to build applications. We will begin by using simulators before porting to actual devices.

UNIT-I

UNIT-II
Android Overview: Architecture, Application Component, Intents and Services, Activities, Broadcast Receiver, Content providers, Fragments, Intents/Filters. Generic UI Development, UI Layouts, UI Controls, Event Handling, Styles and Themes, Custom Components.

UNIT-III
Drag & Drop, Notifications and Alarms, Location Based Services, Sending Email, Sending SMS, Animation, Audio Capture, Bluetooth, Camera, Navigation, Network Connection, Text to Speech, Widgets, Data Backup, Google map, Image Effects Image Switcher.

UNIT- IV
Database Application: SQLite Database Package, Database Creation, Database Insertion, Data Fetching, Packaging and Deploying, Publishing Android Application.

Text Book(s):

Reference Book(s)/Links:
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CLOUD COMPUTING  
(Core Elective-III)

Paper Code: ETVSD-711  
Paper: Cloud Computing  

L  T/P  C  
3  0  3

INSTRUCTION TO PAPER SETTERS  
MAXIMUM MARKS: 75

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objectives & Pre-requisites: Knowledge of basics of networking is a prerequisite to this course. Also knowledge of the programming language is required.

Learning Outcomes: The student after completing the course will be able to:

- Describe the major features of Cloud computing.
- Use virtualization to understand the concepts associated with Cloud computing.
- Understand the risks associated with such Technology.

UNIT-I

Cloud Fundamentals: Cloud Computing Evolution, cloud vocabulary, Cloud building blocks, understanding Public & private cloud environments, cloud computing properties and characteristics.

Cloud Computing Principles and Virtualization: types of virtualization (Hardware Virtualization, Software Virtualization, Memory Virtualization, Storage Virtualization, Data Virtualization, Network Virtualization), Virtualization Security Recommendations, Introduction to various virtualization OS- VMware, KVM, HA/DR using virtualization, Moving VMs, SAN backend concepts.

[No. of Hrs.: 15]

UNIT-II


[No. of Hrs.: 10]

UNIT-III

Cloud Resources: Network and API, Virtual and bare-metal computational resources, Data storage, Cloud data transfer, DBs in cloud, Infrastructure as a service (IaaS), Platform as a service (PaaS) and Software as a service (SaaS).

[No. of Hrs.: 10]

UNIT-IV


[No. of Hrs. 10]

Text Books:

Reference Books:
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**CYBER SECURITY AND CYBER LAW**
(Core Elective-III)

Paper Code: ETVSD-713
Paper: Cyber Security and Cyber Law

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**INSTRUCTION TO PAPER SETTERS**

**MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

**Objectives and Learning Outcomes:**

- After learning the course the students should be able to understand cyber-attack
- They should know types of cybercrimes and cyber laws.
- How to protect them self and ultimately society from such attacks

**UNIT-I**

**UNIT-II**
Cryptography – Cryptographic techniques DES and AES, Public Key Cryptography, RSA Algorithm.

**UNIT-III**

**UNIT-IV**
Computer Language, Network Language, Realms of the Cyber world, A Brief History of the Internet, Recognizing and Defining Computer Crime, Contemporary Crimes, Computers as Targets, Contaminants and Destruction of Data, Indian IT.

**Text Book(s):**

**References Book(s):**
The Scheme and Syllabus for B.Voc (Software Development) (3rd Year) has been approved in 45th BOS Meeting of USICT held on 16th March, 2017 and 43rd Academic Council Meeting held on 25th May, 2017. The Scheme and Syllabus is applicable for the batch admitted in the Academic Session 2016-17 onwards, w.e.f., 1st August, 2018.

**NCC/ NSS/ SPORTS/ COMMUNITY SERVICES/ ECO CLUB**

(General Elective-II)

Paper Code: ETVSS-751/ 753/ 755/ 757/ 759

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Paper: NCC/NSS/ Sports/ Community Services/ ECO Club

Students should actively participate in either of the above activities of the institute during academic session. Credits shall be awarded accordingly based on final assessment by internal institute committee constituted by the Principal/ Director of the respective institutes. Students are encouraged organize events and awards if any shall be distributed to students during annual day/ specific function day accordingly.

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The Scheme and Syllabus for B.Voc (Software Development) (3rd Year) has been approved in 45th BOS Meeting of USICT held on 16th March, 2017 and 43rd Academic Council Meeting held on 25th May, 2017. The Scheme and Syllabus is applicable for the batch admitted in the Academic Session 2016-17 onwards, w.e.f., 1st August, 2018.
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YOGA
(General Elective-II)

Paper Code: ETVSS-761
Paper: Yoga

INSTRUCTIONS TO PAPER SETTERS:

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit

Introduction: Yoga education in Schools/Colleges/Institutions/Organisations/Universities etc. can immensely contribute to health of children by disseminating knowledge and awareness about the value of health, inculcating and nurturing health promoting habits and life style.

The Paper on YOGA has been initiated by USET for the students in a new skill development programme known as B.Voc programme. Currently, launched in 09 Govt. Institutions affiliated to GGSIP University.

Aim and Objectives:
The aim of the Paper is to introduce Yoga. The specific objectives are:
• To impart Yoga education in schools/colleges/Institutions for prevention of disease and promotion of health;
• To train faculty members in Yogic principles and practices.
• To prepare and distribute standardized Yoga teaching and training materials with reference to institute health.

UNIT-I
 Brief introduction to origin of Yoga, Psychological aspects leading to origin of Yoga, Hindu Mythological concepts about origin of Yoga
 History and Development of Yoga
 Etymology and Definitions of Yoga, Aim and Objectives of Yoga, Misconceptions about Yoga, True Nature of Yoga
 General Introduction to Schools of Yoga
 Principles of Yoga, Yoga Practices for Health and Harmony

UNIT-II
Yoga Traditions and Classical Schools of Yoga.
 Yoga's Traditional Source
 Different's traditions of Yoga
 Contemporary Yoga Practice.
 Concepts and Practices of Yoga in others religions.

UNIT-III
Experimental Study Yoga:
 Aasan, Surya Namaskar, Pranayam, Sukshmi-Kriya, Dhyan-Mudra-Shatkarma

UNIT-IV
Yoga and You
 Concept of Health- Aahaar, Nidra, Bharacharya, Vihayaam.
 Aarogya - Prevention, Cure and Remedies.
 Life Management and Development.

Reference Book(s)
[R4] Prof. Ram Harsh Singh, "Swasth Viratam"
[R5] Swami Prabhavanand, "Spiritual Heritage of India (English)", Sri Ramkrishna Math, Madras, 2004
The Scheme and Syllabus for B.Voc (Software Development) (3rd Year) has been approved in 45th BOS Meeting of USICT held on 16th March, 2017 and 43rd Academic Council Meeting held on 25th May, 2017. The Scheme and Syllabus is applicable for the batch admitted in the Academic Session 2016-17 onwards, w.e.f., 1st August, 2018.

YOGA PRACTICAL
I.A

I. RECITATION OF HYMNS & HASTA MUDRA
1.1 Recitation of Pratah-smaran and Shanti Mantras
1.2 Recitation of Pranava Japa and Soham Japa
1.3 Recitation of Hymns from Upanishad & Yoga Texts
1.4 Hasta Mudra: Chin, Jnana, Hridaya, Bhairav, Yoni

II. SHATKARMA
2.1 Dhauti (Kunjal, Vamana Dhauti, Vastra Dhauti)
2.2 Neti (Jalneti, Sutraneti)
2.3 Kapalbhati and its variants
2.4 Agnisara

III. BREATHING PRACTICES
3.1 Breath Awareness: Shwas-prashwas Sanyaman
3.2 Abdomen, Thoracic & Clavicular Breathing, Abdomen + Thoracic Breathing, Abdomen + Thoracic + Clavicular Breathing
3.3 Yogic Breathing: Pause Breathing (Viloma Pranayama), Spinal Passage Breathing (Sushumna Breathing)
3.4 Practice of Puraka, Rechaka & Kumbhaka (Antar & Bahya Kumbhaka)
YOGA PRACTICAL

I.B

YOGIC SUKSMAM AND STHULA VYAYAMA, NABHI PAREEKSHA

1.1 YOGIC SUKSMAM VYAYAMA

1. Uccharana-sthalatatha Vishudha-chakra-shuddhi (for throat and voice)
2. Prarthana (Prayer)
3. Buddh-tatha-dhrityashakti-vikasaka (for developing will power)
4. Smaranashakti-vikasaka (for improving the memory)
5. Medhashakti-vikasaka (for improving the intellect and memory)
6. Netrashakti-vikasaka (for the eyes)
7. Kapofashakti-vardhaka (for the cheeks)
8. Karnashakti-vardhaka (for the ears)
9. Grivashakti-vikasaka (for the Neck) (i) (A & B)
10. Grivashakti-vikasaka (for the Neck) (ii) (A & B)
11. Grivashakti-vikasaka (for the Neck) (iii)
12. Skandha-tatha-bahu-mulashakti-vikasaka (for the shoulders)
13. Bhuja-bandhashakti-vikasaka
14. Kohinashakti-vikasaka
15. Bhuja-vallishakti-vikasaka
16. Purna-bhujashakti-vikasaka (for the arms)
17. Mani-bandhashakti-vikasaka
18. Kara-prsthashakti-vikasaka
19. Kara-talashakti-vikasaka
20. Anguli-mulashakti-vikasaka (for the fingers) (A & B)
21. Angulishakti-vikasaka (for the fingers) (A & B)
22. Vaksa-sthalashakti-vikasaka (for the chest) (1)
23. Vaksa-sthalashakti-vikasaka (for the chest) (2)
24. Udarashakti-vikasaka (for the abdomen) (i)
25. Udarashakti-vikasaka (for the abdomen) (ii)
26. Udarashakti-vikasaka (for the abdomen) (iii)
27. Udarashakti-vikasaka (for the abdomen) (iv)
28. Udarashakti-vikasaka (for the abdomen) (v)
29. Udarashakti-vikasaka (for the abdomen) (vi)
30. Udarashakti-vikasaka (for the abdomen) (vii)
31. Udarashakti-vikasaka (for the abdomen) (viii)
32. Udarashakti-vikasaka (for the abdomen) (ix)
33. Udarashakti-vikasaka (for the abdomen) (x) (A, B & C)
34. Kati shakti-vikasaka (for the waist) (i)
35. Kati shakti-vikasaka (for the waist) (ii)
36. Kati shakti-vikasaka (for the waist) (iii)
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**YOGA PRACTICAL**

**II.B**

I. **YOGASANA (Sitting Postures)**
   1.1 Dandasana, Swastikasana, Padmasana, Vajrasana, Supta Vajrasana
   1.2 Kagasana, Utkatasana, Gomukhasana, Ushtrasana, Shashankasana,
   1.3 Janusirasana, Paschimottanasana, Bhramacharyasana, Mandukasana, Utthana Mandukasana
   1.4 Vakrasana, Ardha Matsyendrasana, Marichyasana, Simhasana

II. **YOGASANA (Supine lying Postures)**
   2.1 Pavanamuktasana
   2.2 Utthana-padasana, Ardha Halasana,
   2.3 Halasana
   2.4 Setubandha Sarvangasana
   2.5 Sarvangasana
   2.6 Matsyasana
   2.7 Chakrasana
   2.8 Shavasana

III. **YOGASANA (Prone lying Postures)**
    3.1 Makarasana
    3.2 Bhujangasana
    3.3 Shalabhasana
    3.4 Dhanurasana
    3.5 Kapotasana
    3.6 Raja Kapotasana
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YOGA PRACTICAL

I. BANDHA
- Jivha Bandha
- Jalandhara Bandha
- Uddiyana Bandha
- Mula Bandha
- Maha Bandha
- Tri Bandha

II. PRANAYAMA (with Antar & Bahya Kumbhaka)
- 2.1 Surya-bhedi and Chandra-bhedi Pranayama
- 2.2 Ujjayi Pranayama
- 2.3 Sheetal Pranayama
- 2.4 Shitkari Pranayama
- 2.5 Bhastrika Pranayama

III. PRACTICES LEADING TO MEDITATION
- 3.1 Ajapa Dharana (Stage 4, 5, 6)
- 3.2 Yoga Nidra (4, 5)
- 3.3 Practices leading to Breath Meditation
- 3.4 Practices leading to Om Meditation
- 3.5 Practices leading to Vipassana Meditation

Practices leading to Preksha Meditation
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YOGA PRACTICAL

III.B

I. YOGASANA

1.1 Siddhasana, Bhadrasana,
1.2 Baddha Padmasana, Uttitha Padmasana,
1.3 Bhunamanasana, Hanumanasana
1.4 Bakasana, Kukkutasana, Garbhasana
1.5 Matsyendrasana, Marjarisana,
1.6 Padangusthasana, Hastapadangusthasana
1.7 Garudasana, Vatayanasana, Natarajasana
1.8 Mayurasana, Padma Mayurasana
1.9 Sirshasana and its variations
1.10 Ekapada and Dwipada Kandarasana

II. MUDRAS

2.1 Yoga Mudra
2.2 Maha Mudra
2.3 Shannukhi Mudra
2.4 Shambhavi Mudra
2.5 Kaki Mudra
2.6 Tadagi Mudra
2.7 Vipareet Karni Mudra
2.8 Simha Mudra
MULTIMEDIA AND ANIMATION LAB  
(Core Elective-II)

Paper Code: ETVSD-753  
Paper: Multimedia and Animation Lab  
0 3 3  

Note: The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. Use HTML multimedia support to play different audio and video formats in a browser.
2. Use a audio processing Software and perform the audio editing tasks– Import audio, select and edit the sound, Create fade-in fade-out effects, Label audio segments, Use noise remove filter, Mix audio, Change stereo to mono tracks, Export audio to different format and save.
3. Use a video processing Software to perform – Trim video clips, crop video, rotate video, and join video, add subtitles, and edit video dimension, bit rate, frame rate, sample rate, channel, and video/audio quality tasks on a video.
4. Create a Movie from video clips to demonstrate: - Audio–Video Mixing, Music, Video Effects, and Video Transitions, Titles
5. Create a logo using 3D modelling software.
6. Create a 3D animation (such as an animated eye) using a 3D modelling software.
7. Create a 2D Animation / cartoon using any 2D software.
8. Use a scanner to create two or more partial scanned images of large poster / photo. Create a panoramic view of multiple photos by stitching together them using any panorama software.
9. Create an advertisement banner for using it in a web page.
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ENTERPRISE RESOURCE PLANNING LAB
(Core Elective-II)

Paper Code: ETVSD-755
Paper: Enterprise Resource Planning Lab
L T/P C
0 3 3

Note: - The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. Study of ERP and its applications.
2. Implementation of ERP for Small Business.
3. Implementation of Supply Chain Management.
4. TS and QS integration with ERP.
5. Study experiment on ERP failure: how-and-why.
6. Case study on any of two:
   a. Budgeting (TCO) for the ERP Importance’s of Conference Room Pilot (CRP)
   b. Tata Steel Organization.
   c. Sony Company using ERP techniques.
   d. Quantum ERP Implementation.
   e. Construction Industry ex. California Shutter.
   f. The Western Union Company.
   g. Gathering and analyzing the requirements and business intelligence required to operate an online website optimally ex. Amazon.com
   h. Case study on CISCO System.
SOFTWARE PROJECT MANAGEMENT LAB
(Core Elective-II)

Paper Code: ETVSD-757
Paper: Software Project Management Lab

L  T/P  C
0  3   3

Note: The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. Study of Project Planning Software like MS Project.
2. Case Study on Project Management.
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MOBILE APPLICATION DEVELOPMENT LAB
(Core Elective-III)

Paper Code: ETVSD-759
Paper: Mobile Application Development   Lab
L  T/P  C
0  3  3

Note: - The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. Write a simple Application which will print "Hello World!"
2. Write a simple Application that uses UI Layout and Control.
3. Write a simple Application that makes use of Style & Themes.
4. Write a simple Application that uses Event Handling.
5. Write a simple Application that uses Alarm, Notification.
6. Make a location based app.
7. Write a program that shows the use animation.
8. Write a program that shows the use of Image Effects.
9. Write a program that shows the use Image Switcher.
10. Write a program that shows the use of database.
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CLOUD COMPUTING LAB
(Core Elective-III)

Paper Code: ETVSD-761
Paper: Cloud Computing Lab

L   T/P   C
0   3     3

Note: - The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. Study about cloud computing models.
3. Creating an Application in SalesForce.com using Apex programming Language.
4. Implementation of SOAP Web services in C#/JAVA Applications.
5. Implementation of SOAP Web services in C#/JAVA Applications. (contt.)
6. Implementation of Para-Virtualization using VM Ware’s Workstation/ Oracle’s Virtual Box and Guest O.S.
7. Implementation of Para-Virtualization using VM Ware’s Workstation/ Oracle’s Virtual Box and Guest O.S (contt.)
8. Installation and Configuration of Hadoop.
9. Create an application (Ex: Word Count) using Hadoop Map/Reduce.
10. Case Study: PAAS( Face book)
11. Case study: Infrastructure as a service (IaaS)
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### CYBER SECURITY AND CYBER LAW LAB
(Core Elective-III)

**Paper Code:** ETVSD-763  
**Paper:** Cyber Security and Cyber Law Lab

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**Note:** The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

**List of Experiments:**

1. To study TCP scanning using NMAP
2. To study Port scanning using NMAP
3. To study TCP / UDP connectivity using Netcat
4. To study Network vulnerability using OpenVAS
5. To perform Web application testing using DVWA
6. To perform Manual SQL injection using DVWA
7. To implement XSS using DVWA
8. To perform automated SQL injection with SqlMap Design based Problems (DP)/Open Ended Problem:
9. To create a web application to secure open network with help of advanced encryption system.
10. To implement RSA algorithm.
11. To implement the Public Key Cryptography using IDEA algorithm
The Scheme and Syllabus for B.Voc (Software Development) (3rd Year) has been approved in 45th BOS Meeting of USICT held on 16th March, 2017 and 43rd Academic Council Meeting held on 25th May, 2017. The Scheme and Syllabus is applicable for the batch admitted in the Academic Session 2016-17 onwards, w.e.f., 1st August, 2018.

**LANGUAGE LAB**
*(Common to all Disciplines)*

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<td>Paper: Language Lab</td>
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**Note:** The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

**List of Exercises:**

1. **Fundamentals of Inter-personal Communication and Building Vocabulary**
   - Self introduction and introducing others
   - Situational Dialogues: Starting a dialogue and responding relevantly & appropriately
   - Role-Play-Expressions in various situations
   - Social and Professional Etiquette: greetings, apologies, requests etc
   - Telephone Etiquette

2. **Non-verbal Communication**
   - Gesture, posture and body language
   - Facial Expressions
   - Paralinguistic Skills
   - Proxemics
   - Eye Gaze
   - Haptics
   - Appearance

3. **Reading Comprehension and Listening Exercise**
   - General vs Local Comprehension
   - Skimming, Scanning
   - Inference drawing
   - Critical reading
   - Listening , Hearing

4. **Presentation Skills**
   - Oral presentation
   - Seminar/ conference Paper Presentation
   - PPTs and Written presentation through poster/projects/reports/e-mails/assignments etc
   - Camera ready presentation

5. **Group Discussion**
   - Dynamics of Group Discussion
   - Intervention
   - Summarizing
   - Body Language and Voice, Intonation

6. **Interview Skills**
   - Interview etiquette
   - Body posture and body language
   - Voice, intonation and modulation
   - Fluency and organization of ideas
   - Rubrics for evaluation: Concept and process, pre-interview planning, opening strategies, answering techniques,
   - Interview through tele-conferencing and video-conferencing
   - Mock interview
   - Campus placement interview

7. **Public and Professional Speaking**
   - Extempore
   - Public Speech
   - Professional speech/lecture

8. **Articulation and Management**
   - Time management
   - Articulation and expression
   - Assertiveness
   - Psychometrics
   - Stress management
ADVANCED COMPUTER NETWORK LAB

Paper Code: ETVSD-751
Paper: Advanced Computer Network Lab

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Note: - The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. Write a program to demonstrate the communication between one client and one server.
2. Write a program to demonstrate communication between one server and two clients.
3. Write a program to demonstrate communication between two servers and one client.
4. Introduction to OPNET Simulator.
5. Simulate Shared LAN and Switch LAN using OPENT.
7. Introduction to network simulator (ns-2).
8. Installation and working of ns-2.
9. Simulate three nodes point-to-point networks with a duplex link between them. Set the queue size and vary the bandwidth and find the number of packets dropped.
10. Simulate the different type of internet traffic such as FTP and TELNET over a network and analyse the throughput.
11. Simulate a transmission of ping message over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion.
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SOFTWARE TESTING

Paper Code: ETVSD-702
Paper: Software Testing

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<tr>
<th>INSTRUCTION TO PAPER SETTERS</th>
<th>MAXIMUM MARKS: 75</th>
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Objectives and Pre-requisites: Basic knowledge of computer and basics of software is expected from the student. Concepts of Software Engineering required.

Learning Outcomes: The student will be able to:
- Design and develop test cases for finding correct and robust software products.
- To apply different testing techniques.
- To do risk analysis of software

UNIT-I
Introduction: What is software testing and why it is so hard?, Error, Fault, Failure, Incident, Test Cases, Testing Process, Limitations of Testing, No absolute proof of correctness, Overview of Graph Theory.

UNIT-II
Functional Testing: Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique.
Structural Testing: Path testing, DD-Paths, Cyclomatic Complexity, Graph Metrics, Data Flow Testing, Mutation testing.

UNIT-III
Reducing the number of test cases: Prioritization guidelines, Priority category, Scheme, Risk Analysis, Regression Testing, Slice based testing.

UNIT-IV

Text Book(s):

Reference Book(s):
HUMAN VALUES & PROFESSIONAL ETHICS-II

Paper Code: ETVHS-702
Paper: Human Values & Professional Ethics-II

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<td>3. Two internal sessional test of 10 marks each and one project report* carrying 5 marks.</td>
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Objectives:

1. The main object of this paper is to inculcate the skills of ethical decision making and then to apply these skills to the real and current challenges of the engineering profession.
2. To enable student to understand the need and importance of value-education and education for Human Rights.
3. To acquaint students to the National and International values for Global development.

UNIT I - Appraisal of Human Values and Professional Ethics:

- Impact of Science and Technology
- Effects of Printed Media and Television on Values
- Effects of computer aided media on Values (Internet, e-mail, Chat etc.)
- Role of teacher in the preservation of tradition and culture;
- Role of family, tradition & community prayers in value development.


UNIT II – Engineers responsibility for safety:

Safety and Risks, Risk and Cost, Risk benefit analysis, testing methods for safety, Engineer’s Responsibility for Safety Social and Value dimensions of Technology - Technology Pessimism – The Perils of Technological Optimism – The Promise of Technology – Computer Technology Privacy

Some Case Studies: Case Studies, BHOPAL Gas Tragedy, Nuclear Power Plant Disasters, Space Shuttle Challenger, Three Mile Island Accident, etc.

UNIT III – Global Issues:

- Case Studies: Kellogg’s, Satyam, Infosys Foundation, TATA Group of Companies

Business Ethics: Corporate Governance, Finance and Accounting, IPR

Corporate Social Responsibility (CSR): Definition, Concept, ISO, CSR.

Environmental Ethics: Sustainable Development, Eco-System, Ozone depletion, Pollution.

Computer Ethics: Cyber Crimes, Data Stealing, Hacking, Embezzlement.

UNIT IV - Engineers Responsibilities and Rights and Ethical Codes:

Collegiality and loyalty, Conflict of interests, confidentiality, occupational crimes, professional rights, responsibilities. To boost industrial production with excellent quality and efficiency, To enhance national economy, To boost team spirit, Work Culture and feeling of job satisfaction, National integration, Examples of some illustrious professionals.

Need for Ethical Codes, Study of some sample codes such as institution of Electrical and Electronics Engineers, Computer Society of India etc., Ethical Audit.

Development and implementation of Codes: Oath to be taken by Engineering graduates and its importance**.

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Text Books:
[T1] Professional Ethics, R. Subramanian, Oxford University Press.

References Books:

*Any topic related to the experience of the B.Voc student in the assimilation and implementation of human values and professional ethics during the past three years of his/her studies in the institute OR A rigorous ethical analysis of a recent case of violation of professional ethics particularly related to engineering profession.

**All students are required to take OATH in writing prior to submission of major project and the record of the same is to be maintained at the college level and/or, this oath may be administered by the head of the institutions during the graduation ceremonies. The draft for the same is available alongwith the scheme and syllabus.
OATH TO BE TAKEN BY ENGINEERING GRADUATES

In a manner similar to the Hippocratic Oath taken by the medical graduates, Oath to be taken by the engineering graduates is as given below.

1. I solemnly pledge myself to consecrate my life to the service of humanity.
2. I will give my teacher the respect and gratitude, which is their due.
3. I will be loyal to the profession of engineering and be just and generous to its members.
4. Whatever project I undertake, it will be for the good of mankind.
5. I will exercise my profession solely for the benefit of humanity and perform no act for criminal purpose and not contrary to the laws of humanity.
6. I will keep away from wrong, corruption and avoid tempting others to vicious practices.
7. I will endeavor to avoid waste and consumption of non-renewable resources.
8. I will speak out against evil and unjust practices whenever and wherever I encounter them.
9. I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my work, even under threat.
10. I will practice my profession with conscience, dignity and uprightness.
11. I will respect the secrets, which are confided to me.

I make these promises solemnly, freely and upon my honor.

(Name of the Student)

Correspondence Address: __________________________________________

________________________________________

Email: ________________________________________
SEARCH ENGINE OPTIMISATION & DIGITAL MARKETING
(Core Elective-IV)

Paper Code: ETVSD-704

Paper: Search Engine Optimization & Digital Marketing

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INSTRUCTION TO PAPER SETTERS

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Objectives & Pre-requisites: Knowledge of basics of internet technology and internet protocols is a prerequisite to this course.

Learning Outcomes: The student after completing the course will be able to:
- Understand the working of a search engine.
- Optimization techniques for promoting a website and defining rules for publishing a website.

UNIT-I
SEO Introduction: Understanding of UX Design for website, Spidering, Indexing and Ranking, Ranking Factors, Keyword Selection, Website Structuring for local national & international searches, optimising webpage, link building and social media, link baiting, technology optimisation, usability optimisation, avoiding Black-Hat SEO, reporting competitor spam, on page optimisation, off page optimisation, local SEO, Setting-up the Google Search Console, setting-up a Robots.Txt File, setting-up an XML Sitemap.

UNIT-II

UNIT-III

UNIT-IV
Audience/Visitor Reports, Traffic Reports, Geographic Reports, Behaviour Reports, Experiment A/B Testing, Conversion Tracking, Funnel Visualization, Multi-channel Funnels, Online PR News & Reputation Management, Tools for Managing Reputation, Strategy and planning a campaign, SEO Project Management, Implementation of SEO Project.

Text Book(s):


Reference Book(s):


The Scheme and Syllabus for B.Voc (Software Development) (3rd Year) has been approved in 45th BOS Meeting of USICT held on 16th March, 2017 and 43rd Academic Council Meeting held on 25th May, 2017. The Scheme and Syllabus is applicable for the batch admitted in the Academic Session 2016-17 onwards, w.e.f., 1st August, 2018.
DATA WAREHOUSE AND DATA MINING
(Core Elective-IV)

Paper Code: ETVSD-706
Paper: Data Warehouse and Data Mining

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Objectives & Pre-requisites: Knowledge of basics of programming- constructs and principles is a prerequisite to this course. Knowledge of Database management system concepts is necessary.

Learning Outcomes: The student after completing the course will be able to:
- Store the data in classified form.
- Operate on the data to extract meaningful data.
- Learn techniques of the data mining and their applications.

UNIT-I
An Introduction to data warehousing, types of databases for data mining, functionalities of data mining, characteristics of data mining, classification of data mining systems, task primitives, integration of data mining with database, issues of data mining.

UNIT-II
Data Warehouse Architecture: Design & construction, three tier architecture, back end tools & utilities, metadata repository, types of OLAP servers.
Data Warehouse Implementation: Efficient computation of data cubes, indexing OLAP data, efficient processing of OLAP queries.
From data warehousing to data mining: warehouse usage, from OLAP to OLAM.

UNIT-III
Data Pre-processing: reason for pre-processing, Data Cleaning, Data Integration and Transformation, Data Reduction, Data Discretization and Concept Hierarchy Generation.

UNIT-IV:
Data cube computation and data generalization: efficient methods of data cube computation attribute oriented induction. Associations and correlations- basic concepts, efficient and scalable frequent item sets mining methods, mining various kinds of association rules, constrain- based association mining. Overview of Big Data Analytics.

Text Books:

Reference Books:
INTERNET OF THINGS
(Core Elective-IV)

Paper Code: ETVSD-708
Paper: Internet of Things

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INSTRUCTION TO PAPER SETTERS

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Objectives and Pre-requirements: Knowledge of Internet and Basic Knowledge of microp is expected from the student.

Learning Outcomes: The student will be able to:
- Design a portable IoT using Arduino/ equivalent boards and relevant protocols.
- Develop web services to access/control IoT devices.
- Deploy an IoT application and connect to the cloud.
- Analyze applications of IoT in real time scenario.

UNIT-I
Fundamentals of IOT
Introduction - Characteristics - Physical design – Protocols - Logical design - Enabling technologies.
IoT Levels – Domain Specific IoTs – IoT vs M2M.
IoT Systems Management – IoT Design Methodology – Specifications Integration and Application Development.

UNIT-II
Building IOT with Raspberry PI
Physical device – Raspberry Pi Interfaces – Programming – APIs / Packages – Web services.

UNIT-III
Building IOT with Galileo / Arduino
Intel Galileo Gen2 with Arduino - Interfaces – Arduino IDE – Programming - APIs and Hacks.

UNIT-IV
Case Studies and Advanced Topics
Various Real time applications of IoT - Connecting IoT to cloud – Cloud Storage for Iot – Data Analytics for IoT – Software & Management Tools for IoT.

Text Book(s):

Reference Book(s):
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**SEARCH ENGINE OPTIMISATION & DIGITAL MARKETING LAB**
(Core Elective-IV)

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<td>Paper: Search Engine Optimisation &amp; Digital Marketing Lab</td>
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**Note:** The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

**List of Experiments:**

1. Optimise website for mobile.
2. Use Power Editor to manage Face book Ads.
3. Make LinkedIn Profile stand out.
4. Use LinkedIn for SEO.
5. Create auto-responders to thank email subscribers.
6. How Twitter Ads help build your following/awareness.
8. Use face book page engagement custom audiences.
9. Create social media marketing video.
10. Blog posts with your YouTube videos.
11. Use Snap chat for customer support.
12. SEO with Google tools.
DATA WAREHOUSE AND DATA MINING LAB
(Core Elective-IV)

Paper Code: ETVSD-756

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List of Experiments:

1. Evolution of data management technologies, introduction to data warehousing concepts.
2. Develop any two applications of following:
   - Develop an application to implement defining subject area, design of fact dimension table, DataMart.
   - Develop an application to implement OLAP, roll up, drill down, slice and dice operation.
   - Develop an application to construct a multidimensional data.
   - Develop an application to implement data generalization and summarization technique.
   - Develop an application to extract association rule of data mining.
   - Develop an application for classification of data.
   - Develop an application for one clustering technique.
   - Develop an application for Naïve Bayes classifier.
   - Develop an application for decision tree.
3. Create data set student.arff.
4. Demonstration of pre-processing on dataset student.arff.
5. Demonstration of classification rule process on dataset student.arff.
INTERNET OF THINGS LAB
(Core Elective-IV)

Paper Code: ETVSD-758
Paper: Internet of Things Lab

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Note: - The required list of Experiments is provided as under. The example cited here are purely indicative and not exhaustive. Attempt shall be made to perform all experiments. However, at least 8 experiments should be done in the semester. More experiments may be designed by the respective institutes as per their choice.

List of Experiments:

1. To study the architecture of SOC Broadcom 2835 application board of Raspberry Pi.
2. To demonstration the OS (Debian) for RPi in a SD card preparation, configuration of Raspberry Pi during first booting and use of remote SSH like putty.
3. To demonstrate the basic linux commands on Raspberry Pi.
4. Basic python programs- Understanding Data types, operators and control structures on Raspberry Pi.
5. To create a database & Store the value in Raspberry Pi.
6. To interface ADC at GPIOs of Raspberry Pi for measuring analog voltage.
7. To familiarize with Intel Galileo Gen2 board and understand the procedure of creation and compilation of C source code.
8. To write C source code to Interface LCD with Intel Galileo Gen 2 and display Hello on LCD Display.
9. To write C source code to Interface Temperature Sensor (LM35) with Intel Galileo Gen 2 and display the temperature on LCD.
10. To write C source code to Interface Bluetooth Module with Intel Galileo Gen 2 and showing communication between Galileo Gen2 & Android Device.
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SOFTWARE TESTING LAB

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**List of Experiments:**

1. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.
2. Write down the test cases for any known applications (e.g. Banking Application).
3. Write down the system specifications for elevator system.
4. Create a test plan document for any application (e.g. Library Management System).
5. Perform the practical implementation of the sample HP web tours using Jmeter.
7. Study of any bug tracking/ Ticketing tool (e.g., Bugzilla/ Jira).
8. Study of any test management tool (e.g. Test Director).
10. Study of Jenkins for Build Creation.