

B.Voc. IT Skills and Software Development

**Dr. Babasaheb Ambedkar Marathwada University**

Aurangabad-431004

**NAAC Re-accredited with Grade 'A'**



**SYLLABUS**

**Bachelor of Vocation in  
“IT Skills and Software Development”  
(3 Years Program)**

**(With Effective From: 2018-19)**



**हे ज्ञानिची पवित्रता | ज्ञानीचि आथि ||**

**B.Voc. IT Skills and Software Development**

**Introduction:**

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF. The B.Voc. programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles along with broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

Although there has been remarkable progress in all sectors of education in last couple of decades, the less regulated area of the education sector—vocational training—seems to have lost its significance/importance. This has led to the widening gap between the supply and demand for skilled manpower across IT, Software and IT enabled organizations. This shortage of skills has translated directly into unemployment among an increasing number of graduates who pass-out every year and are forced to bare- trained in order to become marketable. This program is designed to produce a skilled manpower so that wide variety of options in different sectors of IT would be available and it will improve the opportunities for the unemployed youths in the country in both the private and public sectors.

**Program Outcomes:**

Vocational Education is education that prepares the students for specific job role in various sectors in IT Skills and Software Development and Professional organization. It trains the students from a trade, technician or professional position in IT, IT enabled and software Industry on different job roles or entrepreneur. The program outcomes are the skills and knowledge which the students have at each exit level/at the time of graduation. These outcomes are generic and are common to all exit levels mentioned in the program structure.

- i. Students with vocational training can find work in several state and central government organizations, non-profit groups, and academic institutions and in private sectors as well.
- ii. This program prepares students for specific types of occupations and frequently for direct entry into the market.
- iii. After completion of this program students will have enough competences, to get benefit from market opportunities.
- iv. This program would enable students to update their knowledge and professional skills for entering the work force executing income generating activities or occupying better positions

**Exit Options:** Bachelor of Vocation (B. Voc.) is launched under the scheme of University Grants Commission for skill development based on higher education leading to Bachelor of Vocation (B. Voc.) Degree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification Framework (NSQF). The B. Voc. programme incorporates specific job roles and their National Occupational Standards along with broad based general education.

1. B. Voc. Programme has been designed as per National Skill Qualification Framework emphasizing on skill based education.
2. LEVELS OF AWARD: The certification levels shall lead to Diploma/Advanced Diploma/B. Voc. Degree in IT Skills and Software Development.

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| Award                                                  | Duration | Corresponding NSQF level |
|--------------------------------------------------------|----------|--------------------------|
| Diploma in IT Skills and Software Development          | 1 Year   | 5                        |
| Advanced Diploma in IT Skills and Software Development | 2 Year   | 6                        |
| B. VOC. Degree in IT Skills and Software Development   | 3 Year   | 7                        |

The suggested credits for each of the years are as follows:

| NSQF level   | Skill component credits | General education credits | Normal calendar duration | Exit point /awards                                     |
|--------------|-------------------------|---------------------------|--------------------------|--------------------------------------------------------|
| Year 1       | 36                      | 24                        | Two Semesters            | Diploma in IT Skills and Software Development          |
| Year 2       | 36                      | 24                        | Four Semesters           | Advanced Diploma in IT Skills and Software Development |
| Year 3       | 36                      | 24                        | Six Semesters            | Degree in IT Skills and Software Development           |
| <b>Total</b> | <b>108</b>              | <b>72</b>                 |                          |                                                        |

**Eligibility criteria for Admission:**

1. A candidate will be eligible to join 1st semester of B. Voc. IT Skills and Software Development course, if he/she has passed 10+2 examination (**Any Stream**) or 10+2 vocational from any stream of recognized Board/university, or any other examination recognized as equivalent thereto.
2. The course of study of B. Voc. shall be divided in to six semesters and university examination will be held at the end of every semester as fixed by the University.
3. Semester examination will be open to regular candidates who have been on the rolls of a college affiliated to this University and meet the attendance and other requirements.

**Admission, Registration and Promotion Process:**

Admission will be done on the basis of Percent mark obtained by candidate in Twelfth science or Common entrance test conducted by college or admission criteria as decided by the authority for first semester.

The students will have to clear / qualify at least 50% of theory papers / courses from second semester and all papers / courses (inclusive of theory and practical) from first semester for getting promoted to second year. Similarly the students will have to clear / qualify at least 50% of theory papers / courses from fourth semester and all papers / courses (inclusive of theory and practical) from third semester for getting promoted to third year.

Dropout students will be allowed to register for second or third year as and when the concerned courses are offered by the College, however he/she should not exceed more than twice the duration of the course from the date of first registration at the Centre. Therefore, for obtaining B. Voc. degree a student will have to complete all semesters successfully within 6 years/12 semesters.

**Choice Based Credit and Grading System (CBCS):**

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The choice based credit and grading system has been adopted. This provides flexibility to make the system more responsive to the changing needs of our students, the professionals and society. It gives greater freedom to students to determine their own pace of study.

- Students will have to earn 60 credits for the award of one year Diploma in Vocation (D. Voc.) in IT Skills and Software Development.
- Students will have to earn 120 credits for the award of two year Advance Diploma in Vocation (Adv. D. Voc.) in IT Skills and Software Development.
- Students will have to earn 180 credits for the award of three year Bachelor Degree in Vocation (B. Voc.) in IT Skills and Software Development.

**Credit-to-contact hour Mapping:**

One Credit would mean equivalent of 15 periods of 60 minutes each for theory lecture.

For laboratory course/ workshops/internship/field work/project, the credit weightage for equivalent hours shall be 50% that for lectures.

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.

**Attendance:**

Students must have 75 % of attendance in each course for appearing examination otherwise he / she will not be strictly allowed for appearing the examination of each course. However, students having 65 % attendance may request Head of the concerned Institution for the condonance of attendance on medical ground.

**Evaluation Methods:**

The assessment will be based on Continuous Internal Assessment (CIA) and semester end examination (SEE). There shall Continuous Internal Assessment for each theory paper. Marks obtained by the student in all heads viz. CIA and ESE shall be added while declaring the final result.

**Continuous Internal Assessment (CIA):-** The internal marks shall be assigned on the basis of tutorials/home assignment/seminar presentation/ field Visit Report/Project Report and weekly tests/class test/ preliminary examination to be conducted by the concerned college. These marks shall be communicated to the University before commencement of semester end examination.

**End Semester Examination (ESE):**

The end semester examination for each theory and practical paper shall be conducted by the University at the end of each semester.

Duration of theory examination shall be of three hours for a paper of 80 marks and one and one half hour for a paper of 40/50 marks. Practical examinations shall be of three hour duration for every semester end examinations respectively.

The respective college is advised to arrange maximum number of experiments from the list of experiments provided with the syllabus or experiments based on theory syllabus.

Semester end practical examination will be of 100 marks and 50 marks will be for internal examination. Student must perform at least eight experiments from each laboratory course. The semester end practical examination will be conducted at the end of each semester along with the theory examination.

Students without certified journal shall not be allowed to appear for the practical examination.

**Examination Scheme**

A student shall be evaluated for his/her academic performance in a course through class tests,

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tutorials, practical, homework assignments, term papers, field work, seminars, quizzes, Test examinations, teachers assessments and the End-Semester Examination as applicable.

At the end of the semester, there would be an End Semester Examination as per syllabus. For the examination of First Year for the academic year 2018-2019, the minimum percentage for passing for each course code, practical examination and ESE is 40 %, failing which he/she will get F grade for that course code. This rule will be progressively applicable for higher classes in next consecutive years.

The project work shall be evaluated by midterm seminar(s), quality of work carried out, project report submission and the viva-voce examinations.

The industrial/field training shall be evaluated through the quality of work carried out, the report submission and presentation(s).

**Rule for Combined Passing:**

To pass the examination a candidate must obtain minimum 40% of Marks in each End Semester Examination & CIA taken together, however the candidate must obtain minimum 35% of Marks at the End Semester Examination.

To pass a subject where there is no provision of class test, the candidate must obtain 40% of Marks in the End Semester Examination.

If the candidate remains absent for CIA, his performance should be treated as "Zero" Marks.

**Results Grievances / Redressal :**

Grievances / redressal committee will be constituted in the college to resolve all grievances relating to the evaluation. The committee shall consist of the Principal of the college, the concerned teacher of a particular course and senior faculty member. The decision of Grievances / redressal committee will have to be approved by Competent Authority.

**Earning Credits:**

At the end of every semester, a letter grade will be awarded in each course for which a student had registered. A student's performance will be measured by the number of credits that he/she earned by the weighted Grade Point Average (GPA). The SGPA (Semester Grade Point Average) will be awarded after completion of respective semester and the CGPA (Cumulative Grade Point Average) will be awarded by the university at the respective exit point. **Grading System:**

The grading reflects a student-own proficiency in the course. A ten point rating scale shall be used for the evaluation of the performance of the students to provide letter grade for each course and overall grade for the B.Voc. Program. Grade points are based on the total number of marks obtained by him / her in all heads of the examination of the course. The grade points and their equivalent range of marks are shown in Table-I

  
**PRINCIPAL**  
**S.B.E.S. College of Sciences**  
**Aurangabad**

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**Table I: Ten point grade and grade description**

| Marks Obtained (%) | Grade Point | Letter Grade | Description            |
|--------------------|-------------|--------------|------------------------|
| 90-100             | 9.00- 10    | O            | Outstanding            |
| 80-89              | 8.00-8.90   | A++          | Exceptional            |
| 70-79              | 7.00-7.90   | A+           | Excellent              |
| 60-69              | 6.00-6.90   | A            | Very Good              |
| 55-59              | 5.50-5.90   | B+           | Good                   |
| 50-54              | 5.00-5.40   | B            | Fair                   |
| 45-49              | 4.50-4.90   | C++          | Average ( Above)       |
| 41-44              | 4.1-4.49    | C            | Average                |
| 40                 | 4.0         | P            | Pass                   |
| < 40               | 0.0         | F            | Fail ( Unsatisfactory) |
|                    | 0.0         | AB           | Absent                 |

Non-appearance in any examination / assessment shall be treated as the students have secured zero marks in that subject examination / assessment.

Minimum P grade (4.00 grade points) shall be the limit to clear / pass the course / subject. A student with F grade will be considered as "failed" in the concerned course and he / she has to clear the course by appearing in the next successive semester examinations.

Every student shall be awarded grade points out of maximum 10 points in each subject (based on 10 point scale). Based on the grade points obtained in each subject, Semester Grade Point Average (SGPA) and then Cumulative Grade Point Average (CGPA) shall be computed. Results will be announced at the end of each semester and CGPA will be given at respective exit point.

**Computation of SGPA (Semester Grade Point Average) and CGPA (Cumulative Grade Point Average)**

Grade in each subject / course will be calculated based on the summation of marks obtained in all modules.

The computation of SGPA and CGPA will be as below

Semester Grade Point Average (SGPA) is the weighted average points obtained by the students in a semester and will be computed as follows,

$$\text{Student SGPA} = \frac{\text{Sum (Course Credits) X Number of Grade Points in concerned Course Gained by the}}{\text{Sum (Course Credits)}}$$

The SGPA will be mentioned on the grade card at the end of every semester.

The Cumulative Grade Point Average (CGPA) will be used to describe the overall performance of a student in all semester of the course and will be computed as under.

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$$CGPA = \frac{\text{Sum (All six Semester SGPA)}}{\text{Total Number of Semester}}$$

The SGPA and CGPA shall be rounded off to the second place of decimal.

**Grade Card**

Results will be declared and the grade card (containing the grades obtained by the student along with SGPA) will be issued by the university after completion of every semester. The grade card will be consisting of following details.

Title of the courses along with code opted by the student.

Credits associated with the course.

Grades and grade points secured by the student.

Total credits earned by the student in a particular semester.

Total credits earned by the students till that semester.

SGPA of the student.

CGPA of the student (at respective exit point).

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**Cumulative Grade Card**

The grade card showing details grades secured by the student in each subject in all semesters along with overall CGPA will be issued by the University at respective exit point.

| First Year        |                                               |                |                   |     |                      |     |           |     |       |
|-------------------|-----------------------------------------------|----------------|-------------------|-----|----------------------|-----|-----------|-----|-------|
| SEMESTER – I      |                                               |                |                   |     |                      |     |           |     |       |
| Paper No.         | Paper Title                                   | No. of Credits | Lectures Per Week |     | Exam Pattern (Marks) |     |           |     | Total |
|                   |                                               |                | Th.               | Pr. | Theory               |     | Practical |     |       |
|                   |                                               |                |                   |     | CIA                  | ESE | CIA       | ESE |       |
| General Component |                                               |                |                   |     |                      |     |           |     |       |
| P-1<br>GC101T     | Communication Skills – I                      | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-2<br>GC102T     | Environmental Studies – I                     | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-3 GC103TP       | Computer Fundamental – I                      | 4              | 2                 | 1   | 10                   | 40  |           | 50  | 100   |
| Skill Component   |                                               |                |                   |     |                      |     |           |     |       |
| P-4<br>SC1104T    | PC Hardware & Basics Electronics              | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-5<br>SC1105T    | Financial Accounting Techniques               | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-6<br>SC1106P    | Practical Based on Paper No. P-4 & P-5        | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| P-7<br>SC1107P    | Graphics Designing                            | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| Total             |                                               | 30             |                   |     | 100                  | 300 | 100       | 250 | 750   |
| SEMESTER – II     |                                               |                |                   |     |                      |     |           |     |       |
| General Component |                                               |                |                   |     |                      |     |           |     |       |
| P-8<br>GC201T     | Communication Skills – II                     | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-9<br>GC202T     | Environmental Studies – II                    | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-10<br>GC203TP   | Computer Fundamental – II                     | 4              | 2                 | 1   | 10                   | 40  |           | 50  | 100   |
| Skill Component   |                                               |                |                   |     |                      |     |           |     |       |
| P-11<br>SC1204T   | Hardware Basics with CCTV & Projectors        | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-12<br>SC1205T   | Web Fundamentals                              | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-13<br>SC1206P   | Practical-III (Tally ERP)                     | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| P-14<br>SC1207P   | Practical-IV (Based on Paper No. P-11 & P-12) | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| Total             |                                               | 30             |                   |     | 100                  | 300 | 100       | 250 | 750   |

Notation:- GC=General Component; SC=Skill Component; CIA= Continuous Internal Assessment; ESE= End Semester Examination

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| Second Year       |                                                     |                |                   |     |                      |     |           |     |       |
|-------------------|-----------------------------------------------------|----------------|-------------------|-----|----------------------|-----|-----------|-----|-------|
| SEMESTER – III    |                                                     |                |                   |     |                      |     |           |     |       |
| Paper No.         | Paper Title                                         | No. of Credits | Lectures Per Week |     | Exam Pattern (Marks) |     |           |     | Total |
|                   |                                                     |                | Th.               | Pr. | Theory               |     | Practical |     |       |
|                   |                                                     |                |                   |     | CIA                  | ESE | CIA       | ESE |       |
| General Component |                                                     |                |                   |     |                      |     |           |     |       |
| P-15<br>GC301T    | Aptitude and logical Reasoning                      | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-16<br>GC302T    | Principles of Management -I                         | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-17 GC303T       | Database Management System                          | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| Skill Component   |                                                     |                |                   |     |                      |     |           |     |       |
| P-18<br>SC1304T   | Adv. Hardware and Basics Electrical Engg.           | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-19<br>SC1305T   | Data communication and Networking                   | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-20<br>SC1306P   | Practical Based on Paper No. P-18                   | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| P-21<br>SC1307P   | Advance Excel and Practical Based on Paper No. P-19 | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| Total             |                                                     | 30             |                   |     | 100                  | 300 | 100       | 250 | 750   |
| SEMESTER – IV     |                                                     |                |                   |     |                      |     |           |     |       |
| General Component |                                                     |                |                   |     |                      |     |           |     |       |
| P-22<br>GC401T    | Business Statistics                                 | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-23<br>GC402T    | Industrial Psychology                               | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-24<br>GC403T    | E-Commerce                                          | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| Skill Component   |                                                     |                |                   |     |                      |     |           |     |       |
| P-25<br>SC1404T   | ERP                                                 | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-26<br>SC1405T   | Software Engineering                                | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-27<br>SC1406P   | Practical Based on Paper No. P-25 & P-26            | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| P-28<br>SC1407P   | PHP Programming                                     | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| Total             |                                                     | 30             |                   |     | 100                  | 300 | 100       | 250 | 750   |

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| Third Year        |                                          |                |                   |     |                      |     |           |     |       |
|-------------------|------------------------------------------|----------------|-------------------|-----|----------------------|-----|-----------|-----|-------|
| SEMESTER – V      |                                          |                |                   |     |                      |     |           |     |       |
| Paper No.         | Paper Title                              | No. of Credits | Lectures Per Week |     | Exam Pattern (Marks) |     |           |     | Total |
|                   |                                          |                | Th.               | Pr. | Theory               |     | Practical |     |       |
|                   |                                          |                |                   |     | CIA                  | ESE | CIA       | ESE |       |
| General Component |                                          |                |                   |     |                      |     |           |     |       |
| P-29<br>GC501T    | Campus to Corporate                      | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-30<br>GC502T    | Entrepreneurship development             | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-31<br>GC503T    | Business Economics                       | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| Skill Component   |                                          |                |                   |     |                      |     |           |     |       |
| P-32<br>SC1504T   | Linux with Scripting                     | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-33<br>SC1505T   | Network Security and Cyber law           | 3              | 4                 |     | 25                   | 50  |           |     | 75    |
| P-34<br>SC1506P   | Practical Based on Paper No. P-32 & P-33 | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| P-35<br>SC1507P   | Software Testing Tools                   | 6              |                   | 2   |                      |     | 50        | 100 | 150   |
| Total             |                                          | 30             |                   |     | 100                  | 300 | 100       | 250 | 750   |
| SEMESTER – VI     |                                          |                |                   |     |                      |     |           |     |       |
| General Component |                                          |                |                   |     |                      |     |           |     |       |
| P-36<br>GC601T    | Research Methodology                     | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-37<br>GC602T    | Human Resource Management                | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| P-38<br>GC603T    | Principles of Marketing                  | 4              | 3                 |     | 20                   | 80  |           |     | 100   |
| Skill Component   |                                          |                |                   |     |                      |     |           |     |       |
| P-39<br>SC1604P   | In plant Training and Project            | 12             |                   |     |                      |     |           |     |       |
| P-40<br>SC1605P   | Seminar                                  | 6              |                   |     |                      |     |           |     |       |
| Total             |                                          | 30             |                   |     | 100                  | 300 | 100       | 250 | 750   |

## B.Voc. IT Skills and Software Development

**Continuous Internal Assessment**

1. Paper No. GC101T & GC201T **Communication Skills – I & Communication Skills – II.**  
**Total 20 Marks:** 10 marks for test and 10 marks for Language lab practical/ Assignments.
2. GC102T & GC202T **Environmental Studies – I & Environmental Studies – II**  
**Total 20 Marks:** 10 marks for test and 10 marks for Tutorial / field Visit Report/Project Report/ Assignments.
3. Paper No. GC103TP & 2013TP **Comp. Fundamental –I & Comp. Fundamental –II**  
**Total 10 Marks:** 5 marks for test and 5 marks for Tutorial / Assignments.

**All Skill Components:**

**Total 25 Marks:** 15 marks for test and 10 marks for Tutorial / field Visit Report/Project Report/ Assignments.

**End Semester Examination (ESE)****Theory Examination Question Paper Pattern****General Component**

1. Paper No. - 1 GC101T **Communication Skills – I**
2. Paper No. - 2 GC102T **Environmental Studies – I**
3. Paper No. - 8 GC201T **Communication Skills – II**
4. Paper No. - 9 GC202T **Environmental Studies – II**
5. Paper No. - 15 GC301T **Aptitude and Logical Reasoning**
6. Paper No. - 16 GC302T **Principles of Management**
7. Paper No. - 17 GC303T **Database Management System**
8. Paper No. - 22 GC401T **Business Statistics**
9. Paper No. - 23 GC402T **Industrial Psychology**
10. Paper No. - 24 GC403T **E - Commerce**
11. Paper No. - 29 GC501T **Campus to Corporate**
12. Paper No. - 30 GC502T **Entrepreneurship development**
13. Paper No. - 31 GC503T **Business Economics**
14. Paper No. - 36 GC601T **Research Methodology**
15. Paper No. - 37 GC602T **Human Resource Management**
16. Paper No. - 38 GC603T **Principles of Marketing**

| Q. No.      | Particular                                                   | Marks    |
|-------------|--------------------------------------------------------------|----------|
| 1           | MCQ/ Fill in the blanks/ Match the pair/ True or False       | 10       |
| 2           | Answer in one sentence                                       | 10       |
| 3, 4 & 5    | a. Short answer questions<br>OR<br>b. Short answer questions | 10<br>10 |
| 6 & 7       | a. Long answer questions<br>OR<br>b. Long answer questions   | 15<br>15 |
| Total Marks |                                                              | 80       |

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17. Paper No. GC102T &amp; GC202T Environmental Studies – I &amp; Environmental Studies – II

80 Questions of 1 mark each of type MCQ/ Fill in the blanks/ Match the pair/ True or False /  
Answer in one sentence total Marks 80

18. Paper No. GC103T &amp; GC203T Computer Fundamental – I &amp; Computer Fundamental – II

| Q. No. | Particular                                                   | Marks     |
|--------|--------------------------------------------------------------|-----------|
| 1      | MCQ/ Fill in the blanks/ Match the pair/ True or False       | 10        |
| 2      | Answer in one sentence                                       | 10        |
| 3 & 4  | a. Short answer questions<br>OR<br>b. Short answer questions | 10        |
|        | <b>Total Marks</b>                                           | <b>40</b> |

Skill Component: For all Theory papers

| Q. No. | Particular                                                   | Marks     |
|--------|--------------------------------------------------------------|-----------|
| 1      | MCQ/ Fill in the blanks/ Match the pair/ True or False       | 10        |
| 2      | Answer in one sentence                                       | 10        |
| 3 & 4  | c. Short answer questions<br>OR<br>d. Short answer questions | 10        |
| 5      | a. Long answer questions<br>OR<br>b. Long answer questions   | 10        |
|        | <b>Total Marks</b>                                           | <b>50</b> |

**Practical Examination****Question Paper Pattern of ESE**

For Practical of Paper No: GC103TP &amp; GC203TP Computer Fundamental – I &amp; Computer Fundamental – II

| Q. No. | Particular         | Marks     |
|--------|--------------------|-----------|
| 1      | Record Book        | 10        |
| 2      | Viva               | 10        |
| 3      | 1/2 Practical/s    | 30        |
|        | <b>Total Marks</b> | <b>50</b> |

For All Skill Components

| Q. No. | Particular         | Marks      |
|--------|--------------------|------------|
| 1      | Record Book        | 20         |
| 2      | Viva               | 20         |
| 3      | 1/2/3 Practical/s  | 60         |
|        | <b>Total Marks</b> | <b>100</b> |

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B.Voc.  
(IT Skills and Software Development)  
Semester - I

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**Paper Title: Communication Skills - I**

**4-Credits=60 Lectures**

**Paper No. : GC101T**

**Unit I :**

**25L**

**1. Introduction to Communication**

Importance of Communication, Definition of Communication  
Elements of Communication, Communication process

**2. Types of Communication**

Upward Communication, Downward Communication  
Horizontal Communication

**3. Method of Communication : Verbal , Oral , Written**

**Unit – II:**

**20L**

**4. Written Communication**

Punctuation marks.  
Grammar: Parts of Speech, tenses,  
vocabulary building, constructing para.  
'C's of good communication  
Language of business writing

**5. Oral Communication**

Speeches and Presentation  
Dialogues

**Unit – III ( English Language Lab )**

**15L**

**3. Listening Comprehension**

Listening and typing – Listening and sequencing  
of sentences .

**4. Reading Comprehension and Vocabulary**

Filling in the blanks - Cloze Exercises –  
Vocabulary building –  
Reading and answering questions.

**5. Speaking**

- a. Phonetics: Intonation – Ear Training – Correct  
Pronunciation – Sound recognition exercises –  
Common Errors in English
- b. Conversations: Face to Face Conversation -  
Telephone conversation

**Text Books**

1. Business Communication , By Urmila Rai & S. M. Rai. Himalaya Pub.
2. Communication Skills for Effective Management By Dr. Anjali Ghanekar. Everest  
Pub. House.
3. Developing Communication Skills By Krishna Mohan, Meera Banerji. McMillan

B.Voc. IT Skills and Software Development

Course : B. Voc. in ITSSD

4-Credits=60 Lectures

Paper Title: Environmental Studies - I

Paper No. : GC102T

**Unit I :Multidisciplinary nature of environmental studies**

15L

Definition, scope and importance Need for public awareness.

**Unit – II Natural Resources** : Renewable and non-renewable resources.

15L

Natural resources and associated problems.

a) **Forest resources** : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.b) **Water resources** : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.c) **Mineral resources** : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.d) **Food resources** : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.e) **Energy resources** : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.f) **Land resources** : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

• Role of an individual in conservation of natural resources.

• Equitable use of resources for sustainable lifestyles.

**Unit – III Ecosystems**

15L

Concept of an ecosystem.

• Structure and function of an ecosystem.

• Producers, consumers and decomposers.

• Energy flow in the ecosystem.

• Ecological succession.

• Food chains, food webs and ecological pyramids.

• Introduction, types, characteristic features, structure and function of the following ecosystem :-

a. Forest ecosystem b. Grassland ecosystem

c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans)

**Unit – IV Biodiversity and its conservation**

15L

• Introduction – Definition : genetic, species and ecosystem diversity.

• Biogeographical classification of India

• Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values,

• Biodiversity at global, National and local levels.

• India as a mega-diversity nation, • Hot-spots of biodiversity.

• Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.

• Endangered and endemic species of India

• Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

**Reference:**

- Kiran B Chokkas and others : "Understanding Environment", Sage 2004
- P. VenugopalaRao, Environmental Science & Engineering, PHI
- Benny Joseph: Environmental Studies, Tata McGraw Hill
- Lester R Brown, Plan B: rescuing a Planet under stress and a civilization in trouble, Orient Longman
- Kurien Joseph & R Nagendran, Essentials of Environmental Studies, Pearson

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD****4-Credits=60 Lectures****Paper Title: Computer Fundamentals-I****Paper No. : GC103TP****UNIT - I****15L****Fundamentals of Computer System**

Characteristics & features of Computers, Components of Computers, Organization of Computer, Block Diagram of Computer, Input Devices : Touch screen , OMR, OBR , OCR, Light pen ,Scanners, Output Devices: Digitizers, Plotters, LCD Projector, Plasma Display, Printers, Software: Types of Software.

**Windows Operating System**

Windows Basics, Personalize your desktop, logoff, Hibernate, sleep mode, Connect various Devices to computer, personalize your computer, Desktop, Screen Saver, Themes, File name and extensions, Folder management. Use of various Applications of Windows(Viz. Paint, Calculator, sniping tool etc.), Windows help, use of paint to resize and edit a photo for upload

**UNIT - II****15L**

**Internet Basics:** internet, Intranet, LAN, WAN, MAN, web browser, www, http and https, internet security (SSL), E-mail creation and operation, creating/registering to various sites, setting favorite, Browser options/setting for homepage, download, adding plugins to browser. Online booking: bus, railway, air tickets, hotel, movies etc. Bill payments: telephone, electricity, mobile recharge, etc. Searching Engines: Searching techniques.

**Unit-III****30L****MS-Word :**

Word basic: Tabs and tools, their settings. Word Shortcuts. Inserting and formatting shapes, pictures, online pictures, smart arts, hyperlinks, headers and footers. Creating following Files in Word, Admission Form, I-Card, Bio-Data, Project Report, Certificate, Flyer, Letterhead, Envelop printing with address, Greeting Card, Notice, Labels using Mail Marg. Printing techniques

**MS-PowerPoint:**

PowerPoint Basics: Tabs and tools their settings, PowerPoint Shortcuts Applying Animation and Transition Effects. Inserting and formatting shapes, pictures, online pictures, smart arts, hyperlinks, headers and footers, Excel data. Creating Following outputs: Greeting card, Creating Photo Album, presentation on any 5 topics of Skill Components. Different views (Notes page Slide sorter etc.), Creating Handouts.

**Reference:**

1. Fundamentals of Computers, B.Ram,
2. Computer Fundamental, V. Rajaraman
3. Microsoft Office – Complete Reference – BPB Publication

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**3-Credits=45 Lectures**

**Paper Title: PC Hardware & Electronics Basics**

**Paper No. : SC1104T**

**Unit – I :**

**15L**

**Fundamentals of Computer System**

Introduction, Characteristics & features of Computers, Components of Computers, Organization of Computer.

**Computer Generation & Classification**

Generation of Computers : First to Fifth, Classification of Computers, Distributed & Parallel computers

**Computer Languages**

Types of Programming Languages, Machine Languages, Assembly Languages, High Level Languages, Assembler, Linker, Loader, Interpreter & Compiler.

**Unit – II**

**15L**

**Number Systems and Arithmetic**

Decimal Number System & Binary Number System, Decimal to Binary conversion(Double-dabble method only), Binary to Decimal Conversion, Binary Arithmetic : Binary addition, Hexadecimal number system , Hexadecimal to binary, binary to Hexadecimal, Hexadecimal to decimal conversion, Binary subtraction using 1's complement, 2's complement method.

**Logic Gates**

Logic Gates : AND, OR, NOT, Ex-OR, Ex-NOR, NAND as Universal building block, Logic diagrams of Boolean expressions Boolean expressions for logic diagrams.

**Unit – III**

**15L**

**Computer Memory**

Memory Units, Memory Cell & Organization, Types of Memory (Primary And Secondary), RAM, ROM, PROM, EPROM, Secondary Storage Devices ( FD, CD, HD, Pen drive, DVD, Tape Drive, etc.)

**Processor**

Structure of Instruction , Description of Processor, Processor Features, RISC & CISC.

**Operating system Concepts**

Why Operating System , Functions of Operating System,

Types of Operating System: Batch O.S., Multiprogramming O.S., Time Sharing O.S., Personal Computers O.S., Network O.S.

**Reference:**

4. Fundamentals of Computers, B.Ram,
5. Computer Fundamental, V. Rajaraman
6. Digital Electronics by P. K. Sinaha

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD****3-Credits=45 Lectures****Paper Title: Financial Accounting Techniques****Paper No. : SC1105T****Unit –I****15L****Introduction of Book-keeping and Accountancy**

Meaning and definition, Objectives, Importance and Utility, Difference between Book-Keeping and Accountancy, Basis of Accounting - Cash basis and Accrual basis. Qualitative characteristics of accounting information, Financial Accounting, Cost Accounting, Management Accounting

**Basic Accounting Terminologies**

Business Transactions – Cash, Transactions and Credit Transactions, Goods, Profit, loss- Operating and Non-operating profits, Normal gains and abnormal gains with examples. Difference between profit and Income, Assets, Liabilities, Net-worth/ Owners Equity Assets: Fixed/ Current/Tangible/ Intangible/ fictitious. Contingent Liability. Capital, Drawings, Debtors, Creditors, Capital Expenditure, Revenue and Deferred Revenue Expenditure. Cash discount and Trade discount. Solvent and Insolvent. Accounting Year. Trading Concerns and 'Not for Profit' Concerns. Goodwill

**Accounting Concepts, Conventions and Principles and Indian Accounting standards concepts and objectives**

Meaning and Importance, Business Entity. Money measurement . Cost. Consistency. Conservatism. Going Concern, Realization, Accrual, Dual Aspect. Disclosure, Materiality, Revenue, Matching, Accounting Standards

**Unit –II****15L****Meaning and fundamentals of Double Entry Book-keeping System**

Study of Double Entry Book-keeping system. Advantages of Double Entry Bookkeeping system. Comparison of Double Entry Bookkeeping system with Conventional Accounting system.

**Classification of Accounts and Accounting equations Rules**

Types of accounts-personal, Impersonal accounts- Real accounts, Nominal accounts. Rules for different accounts for passing entries. Illustrations Accounting equations Assets, Liabilities, Revenue and capital expenses Brief: Explanation about IFRS.

**Source documents required for Accounting**

Meaning, contents and specimen. Voucher-internal, external voucher Petty cash and cash voucher Cash and Credit memo Receipt, Debit and Credit note, Pay-in-slip, Withdrawal slip, Cheque-Bearer, Order, Crossed, Account payee, Bank pass book, Bank Statement and Bank advice

**Journal**

Meaning, Importance and utility of Journal. Specimen of Journal. Writing of Journal entries

**Subsidiary Books**

Meaning, need and specimen of different Subsidiary Books. Simple Cash Book with cash column only. Cash Book with cash and bank columns. Analytical Petty Cash Book-impres system. Purchase Book. Sales Book. Purchase Return Book. Sales Return Book Bank Book Journal Proper, Transactions of Discounts to be taken in Journal Proper

B.Voc. IT Skills and Software Development

**Unit –III**

15L

**Ledger**

Meaning, need and contents of ledger be explained Specimen of ledger. Posting of entries from Subsidiary books to ledger. Balancing of ledger accounts.

**Bank Reconciliation Statement**

Meaning, need and importance. Reasons for difference in bank balance as per cash book and balance as per bank pass book Specimen of Bank Reconciliation Statement Preparation of Bank Reconciliation Statement

**Trial balance**

Meaning and Purpose. Specimen of Trial Balance. Preparation of Trial Balance from given balances of accounts.

**Errors and their rectification**

Meaning and effects of errors. Types of errors - Errors of principles, Errors of Ommission, Errors of commission and Compensating Errors. Steps to locate errors Errors affecting and not affecting. Trial Balance. Treatment of balance of suspense account Rectification entries

**Depreciation, Provisions and Reserves**

Depreciation : Meaning, Need and Factors affecting depreciation. Methods of computation of Depreciation : Straight Line Method, Written Down Value Method (Excluding Change in method). Accounting Treatment of Depreciation : By charging to asset account by creating Provision for depreciation / accumulated depreciation account. Provisions and Reserves: Meaning, Objectives and Difference between provisions and Reserves. Types of Reserves: Revenue Reserve, Capital Reserve, General Reserve, Specific reserves, Secret reserves.

**Financial statements of Proprietary concern**

Financial Statements- Meaning, objective and Importance Preparation of Trading Account. Preparation of Profit and Loss Account. Preparation of Balance Sheet. Effects of following adjustments only. Closing stock, Depreciation, Bad and Doubtful debts, Provision for discount on Debtors, and Creditors, Outstanding expenses, Prepaid expenses, Accrued income, Income received in advance, Drawings, Goods distributed as free sample

**Reference Books:**

1. New Approach To Accountancy by H.R.Kotalwar
2. Advanced Accountancy by Shukla
3. Accountancy by Mahurkar & Deshpande
4. Book-Keeping and Accountancy, HSC Board Pune

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD

**6-Credits=90 Lectures = 30Practicals**

**Paper Title:** Practical-I *Practical-I based on p-4, p-5* **Paper No. : SC1106P**

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**I) Photoshop**

Students should provide hands-on knowledge with the Photoshop software

**II) Illustrator/ Page Maker**

Students should provide hands-on knowledge with the Illustrator/Page Maker software

**III) InDesign/ Corel Draw**

Students should provide hands-on knowledge with the InDesign/CorelDraw software

**Course :** B. Voc. in ITSSD

**6-Credits=90 Lectures = 30Practicals**

**Paper Title:** Practical-II

**Paper No. :**

**SC1107P : Graphics Designing**

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Practical Based on paper No. SC1104

Study of Gates

Practical Based on paper No. SC1105

User Interface of Tally.ERP9,

Shortcut keys

Creating a Company,

Accounting Concepts,

Record transaction in accounting software,

Tally Entries

B.Voc. IT Skills and Software Development



B.Voc.  
(IT Skills and Software Development)  
Semester - II

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD  
**Paper Title:** Communication Skills - II

**4-Credits=60 Lectures**  
**Paper No. : GC201T**

**Unit I :**

**25L**

Written media of Communication: Letters, Notices, Minutes, Manual, Leaflet, Complaints & Suggestion, Job Application, Visual Media of communication: slide presentation, Pictures & Photographs, Posters & Advertisement, Non-Verbal Media of Communication, Types of Report, characteristics of Good Report, Essential Requisites of Good Report-Writing, Planning the Report, Outlining Issues for Analysis, Writing the Reports.

**Unit – II:**

**20L**

Problem of Group Communication- Meeting - types of meeting, Advantages & Disadvantages of Meeting, - Preparation for Meeting – conduct of a Meeting – Responsibility of participants. Purpose, Types of interviews – promotion, appraisal, exit, telephone. Employment or selection Interview : Candidate's preparation, Question commonly asked in interview, role of interviewer, Interviewer's preparation.

**Unit – III ( English Language Lab )**

**15L**

Cassettes: "Tiger's Eye" Series.( vol. 1 & 2 ), "Twist in the Tail", The Listening drill is to be given and question should be framed., Reading with proper pronunciation and ideal reading is to be recorded., CIEFL' Spoken English exercises part one and two, Drilling : Proper Pronunciation of word and sentences

**Text Books**

1. Business Communication, By Urmila Rai & S. M. Rai. Himalaya Pub.
2. Communication Skills for Effective Management By Dr. Anjali Ghanekar. Everest Pub. House.
3. Developing Communication Skills By Krishna Mohan, Meera Banerji. McMillan

B.Voc. IT Skills and Software Development

Course : B. Voc. in ITSSD

Paper Title: Environmental Studies - II

4-Credits=60 Lectures

Paper No. : GC202T

**Unit I :**

**The Multi-disciplinary Nature of Environmental Studies:**

15L

Definition, scope and importance, Need for Public Awareness, Ecology and Ecosystems: Definition of Ecology, Structure and function of an ecosystem, Producers, Consumers and Decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, Introduction, types, characteristics features and function of – forest ecosystem, grassland ecosystem, desert ecosystem, aquatic ecosystem(ponds, streams, lakes, rivers, oceans, estuaries)

**Unit – II**

**Biodiversity and its conservation:**

15L

Introduction, genetic, species and ecosystem diversity definition, value of biodiversity, biodiversity at global, national and local levels ,India as a mega diversity nation, hot spots of biodiversity, threats to biodiversity – habitat loss, poaching of wild life, man wild life conflicts, endangered and endemic species of India, conservation of bio diversity in in-situ EX-situ

**Unit – III**

**Natural Resources:**

15L

Air resources-features, composition, structure, air quality management, forest resources-, water resources, mineral resources, food resources, energy resources, land resources, Environmental pollution: definition, air pollution, water pollution, marine pollution, thermal pollution, soil pollution, noise pollution, nuclear hazards, waste management, cleaner technologies, reuse and recycling, solid waste management, role of individuals to prevent pollution, pollution case studies, disaster management – floods, earthquake, cyclone and landslides

**Unit – IV**

**Social issues and the environment:**

15L

From unsustainable to sustainable development, urban problems related to energy, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people- it's problems and concerns, case studies, environmental ethics- environmental value relationships, environmental ethics and species preservation, climate change, global warming, acid rain, Ozone layer depletion, nuclear accidents and holocaust, case studies, waste land reclamation, consumerism and waste products, legislation to protect the environment, environmental protection act, dir(prevention and control of pollution) act, water(prevention and control of pollution) act, wild life protection act, forest conservation act, environmental management systems(EMS), environmental information systems(EIS), P.I.L public hearing and role of NGOS, ISO 9000 and 14000, issues involved in enforcement of environment legislation, public awareness, environmental economics-environment and standard of living

**Reference:**

- Kiran B Chokkas and others : "Understanding Environment", Sage 2004
- P. VenugopalaRao, Environmental Science & Engineering, PHI
- Benny Joseph: Environmental Studies, Tata McGraw Hill
- Lester R Brown, Plan B: rescuing a Planet under stress and a civilization in trouble,
- Orient LongmanKurien Joseph & R Nagendran, Essentials of Environmental Studies, Pearson

B. Voc. IT Skills and Software Development

Course : B. Voc. in ITSSD

Paper Title: Computer Fundamentals-II

3-Credits=45 Lectures

Paper No. : SC203T

**Unit –I**

15L

**Printing and Scanning:**

Types of Printers their advantages and disadvantages, Installation of printer driver, Printer setting, Printer shearing, Default printer setting, Printing in different software. Types of Scanners their advantages and disadvantages, Installation of scanner driver, Scanner settings for file size and image resolution, saving as Image, PDF.

**Projector:** Connecting projector to Desktop, Laptop, projector setting.

**Windows Control Panel:** Windows Shortcuts, Windows Updates, Firewall, Power Options, Backup and Restore, Clock Language and Region setting.

**Unit –II**

15L

**Outlook:**

Outlook Basics Tabs and tools, Creating Contacts, Scheduling Appointments, Task, Events, Setting status of a task and its priority. Configuring an email account to outlook. Sending and receiving mail

**Internet :**

Internet Banking, online payments do and don't. do and don't while Password setting Adhar update, registration on various government sites.

**Unit –III**

30L

**MS-Excel :**

Excel basic: Tabs and tools, their settings. Excel Shortcuts. Number Formatting, Conditional Formatting, Sorting and Filters, Inserting and formatting shapes, pictures, online pictures, smart arts, hyperlinks, headers and footers. Charts and their types, Formula Fundamentals Syntax of a formula. Printing techniques. References: Absolute and Relative. Creating following Files in Excel, Time Table, Result sheet, Invoice, Income and Expenditure, Budget sheet etc.

**References:**

7. Fundamentals of Computers, B.Ram,
8. Computer Fundamental, V. Rajaraman
9. Microsoft Office – Complete Reference – BPB Publication

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD

**3-Credits=45 Lectures**

**Paper Title:** Hardware Basics with CCTV & Projectors

**Paper No. : SC1204T**

**Unit –I**

**15L**

**Understanding and Working with Personal Computers**

Understanding How PCs Work. The Four Main Functions of Computing. PC Hardware Components. How PCs Work. Working with PCs. PC Workspaces and Tools, Preventive Maintenance, Environmental and Safety Concerns. SMPS: Types and its working trouble shooting

**Unit –II**

**15L**

**Motherboard**

Motherboards & Central Processing Units, Identifying Motherboards, Types of Motherboards, Motherboard Form Factors, Mother Board Components ; Central Processing Unit (CPU) and Processor Socket or Slot, Motherboard Buses, Chipsets, Expansion Slots, Memory Slots, Connectors, BIOS Chip, CMOS Battery, Jumpers and DIP Switches, Firmware, Cache Memory  
Study of Peripheral Devices, Connecting these Devices to system Installation of Device Driver and Configuration of various Devices Types of RAMS (DDR2, DDR4..) and hard drives Graphics Cards: Introduction, working and types.

**Unit –III**

**15L**

**Operating System Settings:**

Operating System Installation (Windows, Linux), Creating Users, types of Users. IP setting for network shearing and Internet access in Windows and Linux. Antivirus types, installation, Configuration, updating, PC cleaning.

**CCTV:**

Types of cameras, Cables used in CCTV, Configuration and installation of cameras, DVR and its Settings, taking backup of recording.

**Projector:**

Types of Projectors, Installation, Configuration, settings.

**Core Reference:**

- 1.Wiley Pathways PC Hardware Essentials Project Manual by Groth, David ; Gilster, Ron, Liberty Lake, Washington ; Polo, Russel
- For Book visit the website:  
<http://www.coursesmart.com/9780470114117/chap01#X2ludGVybmFsX1BGUmVhZGVyP3htbGltPTk3ODAoNzAxMTQxMTcvNzg=>

**Course :** B. Voc. in ITSSD  
**Paper Title:** Web Fundamentals

**3-Credits=45 Lectures**  
**Paper No. : SC1205T**

**Unit –I**

15L

**Basic concepts**

- Web standard : Standard Process, Advantage of Standard, Current Web Standard.
- Basic web designing: Introduction to web browser, architecture of web browser, web page, Static & dynamic web pages, home page, web-site. Web-servers & clients.
- Basic's of Internet, Internet Domains
- Protocols definition, Overview of TCP/IP, Telnet, FTP
- Communication between browser and web server

**Introduction to HTML**

- Structure of HTML program
- **HTML paired tags, Singular Tag**
- **Text formatting:** paragraph, line break, headings , drawing lines.
- **Text styles:** Bold, italics, underline.
- **Centering & Spacing**

**Unit –II**

15L

**HTML**

- **Lists:** types of lists viz. unordered, ordered, definition lists
- **Adding graphics:** image, background, border, using width and height attributes.
- **Tables:** creation and setting attributes of table, width & border attribute, Cell Padding, Cell Spacing, Colspan & Rowspan Attributes, background color.
- **Linking documents (Links):** External document references, internal document references.
- **Introduction to frames:** frameset and frame tag.

**Unit-III**

15L

**Introduction to DHTML**

- Overview of dynamic HTML.
- **Cascading Style Sheets:** Font Attributes, Color & background Attributes, Text Attributes, border & Margin Attributes, List Attributes.
- **Class**
- **Using the <SPAN>...</SPAN> , <DIV> ... </DIV> Tag.**
- External Style Sheets.

**Introduction to javascript:**

- Javascript in web pages, Advantages of Javascript, Writing Javascript into HTML, Basic Programming Techniques, Operators and expressions in Javascript,

**References**

1. Web Enabled commercial Application Development Using HTML, DHTML,
2. JavaScript by -Ivon Bayross. Complete reference HTML
3. JavaScript Bible.

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD

**6-Credits=90 Lectures = 30Practicals**

**Paper Title:** Practical-III (Tally ERP)

**Paper No. : SC2106P**

**Transactions :**

Inventory Management , Inventory Transactions, Debit & Credit Note Entry, GST (Goods and Services Tax)

**Trial balance**

Features and characteristics, Trading account and profit and loss account, Understanding Balance sheet, Profit & Loss A/c

**Data Maintenance**

Security controls, Export of Tally Data, Printing options in tally

**Advanced Accounting**

Cost centers and cost categories, Cost center class, Budgets & controls, Variance Analysis, Budget & Actual Comparison, Deviations and how it is derived, Basic knowledge of std. costing, Ratio Analysis, Funds Flow, Cash Flow, Information regarding TDS Reversing and Memorandum JV (Journal Voucher)

**Advanced Inventory**

Reorder levels, Pre-closure of orders, Item cost tracking, Price level & price list, POS

**Banking**

Electronic Payments, Sources of Financing, Collaterals (Types of Loan), Data Required for Financing, Bank reconciliation

**Job Costing**

Features of Job Costing, Activation, Recording job costing related transaction, Reports,

**Job Work Order**

Activation, Voucher Type setup for job work out/in, Job order processing

**Advanced Payroll**

Payroll & Statutory Details, Income Tax,

**GSTR 1, 2, 3B**

Returns summary, Computation details, Summary of exceptions, Table wise GSTR 1, 2, 3B, Status reconciliation, Exporting GSTR 1, 2, 3B

**Access Controls & Security management**

Enabling Security Control, Defining Security Level, Create Users

**Data Synchronization**

Reports, Types and Trial Balances

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**6-Credits=90 Lectures = 30Practicals**

**Paper Title: Practical-IV**

**Paper No. : SC1207P**

Practical Based on paper No. SC1204

1. Laboratory Tools and equipment handling Techniques.
2. Assembling and disassembling a PC
3. PC Cleaning.
4. SMPS Testing and troubleshooting
5. Types of cables used in PC connection internal and external, data cables, power supply, VGA, HDMI, etc.
6. Mother board parts and their connection fitting a motherboard changing CMOS battery, RAM, HDD, CD/DVD drive, adding a HDD.
7. Basic BIOS settings.
8. Installation of Windows operating system (Windows7 – Windows10).
9. Creating users and assigning rights to users, sharing folders and devices in a network, IP settings.
10. Installing device drivers (automatic and manual).
11. CCTV installation and DVR settings with app management.
12. Projector installation and settings.
13. Preventive maintenance of PC (Disk Cleanup, disk defragmentation, check disk & fixing errors)

**Mini project based on paper SC1205**

Develop a web site using HTML, DHTML, CSS, Java Script.

  
**PRINCIPAL**  
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B.Voc. IT Skills and Software Development



B.Voc.  
(IT Skills and Software Development)  
Semester - III

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**Paper Title: Aptitude and logical Reasoning**

**4-Credits=60 Lectures**

**Paper No. : GC301T**

**Unit I : Reasoning Ability & General English**

**25L**

Reasoning Ability: Data interpretation (bar chart, pie chart, line chart, tables), number series, blood relations, odd series, Distance and Direction etc.

General English: Vocabulary, synonyms, Antonyms, Word formation, Passage reading,

**Arithmetic:** Number System, Simplification, Square root & Cube root, Surds and Indices, HCF, LCM Decimal fraction, Average.

**Unit – II:**

**20L**

Percentage, Problem on Ages, Partnership, Profit & loss, Ratio & proportion.

**Unit – III**

**15L**

Probability, Permutation and combination.

**Unit – IV**

Set theory, properties of sets, Venn diagram.

**Text Books**

1. Quantitative Aptitude by R.S. Agarwal
2. Verbal & Non-verbal Reasoning by R.S. Agarwal
3. English Grammar, Wren & Martin
4. Cracking the Test of Reasoning & Data Interpretation, Prof. Jagdeep Vaishnav, Nishant B. Patel, Biztantra
5. Test of Reasoning, Edgar Thorpe, Tata-McGraw Hill, 200

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**Paper Title: Principles of Management**

**4-Credits=60 Lectures**

**Paper No. : GC302T**

**Unit I :**

**1. Introduction:** - Concept of Management, Scope, Functions and Principles of Management, Evolution of Management thought, Contribution of F.W. Taylor, Henry Fayol, Mary Parker Follett, Elton Mayo, Peter Drucker. **15L**

**Unit II :**

**Planning:** - The Process of Planning, Objectives, Policy and Procedures, Forecasting and Decision Making.

**Unit – III**

**Organizing:** - Meaning, Importance and Principles, Span of Management, Centralization and Decentralization, Patterns of Organization, Line and Staff Relationships. **15L**

**Unit – IV**

**Staffing:** - Nature & Scope of Staffing, Manpower Planning, Selection & Training, Performance Appraisal. **15L**

**Controlling:** - Concept or Managerial Control, Control aids, Scope Responsibilities of Managers.

**Reference:**

1. Management & Organizations Behaviour— by Paul Hersey & Ken Blanchard
2. Essentials of Management— by Paul Hersey & Ken Blanchard
3. Principles and Practice of Management— by L.M. Prasad
4. Human Behavior at Work— by Keith Devis
5. Organizational Behavior— by Robbins

  
**PRINCIPAL**  
**S.B.E.S. College of Science**  
**Aurangabad**

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**Paper Title: Database Management System**

**4-Credits=60 Lectures**

**Paper No. : GC303T**

**Unit –I**

**Basic Concept**

**15L**

Data Definition, Types of Data, Record and File, Database System Application, Purpose of Database System, Component of a DBMS: Users, Facilities & Structure, Advantageous & Disadvantageous of DBMS

**Data Modeling & Design**

Data Association – Entities, Attributes & Association, Relationship among Entities, Types of Data Model: Relational, ER, Semi-structured, Object-Oriented, Advantageous & Disadvantageous of above model

**Unit –II**

**Entity-Relationship Data Model**

**15L**

Entity, Entity Set, Types of Entities, Strong & Weak Entity, Representation, Attribute, Types of Attributes, Representation

**Relational Data Model**

Basic Structure of Relational Data Model, Database Schema, Constraints: Integrity Rule 1 & 2, Normal Form: Anomalies, Functional Dependency, Dependency Diagram, First Normal Form, Second Normal Form, Third Normal Form

**Unit –III**

**Structured Query Language**

**30L**

DDL Statements to Create and Manage Tables using Create & Alter, Manipulating Data using Insert, Update & Delete Statement, Retrieving Data Using SQL Select, Restricting and Sorting Data, Using Single Row functions, Conversion Functions and Conditional Expressions, Aggregated Data Using Group Function, Displaying data from Multiple tables.

**Unit-IV**

**Data Storage**

Overview of Physical Storage Media, Magnetic Disk

**Transaction Processing**

Transaction Concept, Transaction State

**References:**

1. Database System Concepts (Sixth Edition ) Avi Silberschatz, Henry F. Korth,S. Sudarshan
2. An Introduction to Database Systems by Bipin C. Desai

B.Voc. IT Skills and Software Development

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**Course :** B. Voc. in ITSSD

**Paper Title:** Adv. Hardware and Basics Electricals

**3-Credits=45 Lectures**

**Paper No. : SC1304T**

**Unit –I**

Understanding System Resources  
Mother Board Components.  
Input/Output (I/O) Addresses.  
Interrupt Requests.  
DMA Channels.  
Memory Addresses.  
Working with Expansion Cards.  
Portable Systems.  
Examining Laptop Components.  
Power Sources, Displays, Keyboards and Pointing Devices.  
Internal Components, Upgrading Laptop Components.

15L

**Unit –II**

**Backup and data Recovery**

Backup Consideration  
Using Microsoft Backup  
Backup Exec  
Backup Troubleshooting  
Recovery techniques,  
Understanding data Loss  
Protecting drives and data  
Recovering Files and Folders

15L

**Unit –III**

Trouble shooting  
Motherboard  
SMPS  
Memory  
Plug and Play Configuration and Trouble shooting

15L

**Core Reference:**

1. Wiley Pathways PC Hardware Essentials Project Manual by Groth, David ;  
Gilster, Ron, Liberty Lake, Washington ; Polo, Russel  
For Book visit the website:  
<http://www.coursesmart.com/9780470114117/chap01#X2ludGVybmFsX1BGUmVhZGVyP3htbGlkPTk3ODAoNzAxMTQxMTcvNzg=>

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD

**Paper Title:** Data communication and Networking

**3-Credits=45 Lectures**

**Paper No. : SC1305T**

**Unit –I**

15L

**Data Link Layer:**

Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link protocols, Sliding Window Protocols, Protocol Performance, Protocol Specification and verification

**Network Layer :**

Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Internetworking.

**Unit –II**

15L

**Transport layer:**

Transport layer design issues, Connection management, A Simple transport on Top of X.25.

**Session Layer:**

Session layer design issues, Remote procedure call

**Unit-III**

15L

**Presentation layer:**

Presentation layer design issues, Abstract syntax notation1 (ASN.1), Data compression techniques, Cryptography.

**Application Layer:**

Application layer design issues, File Transfer, access and management, Electronic mail, Virtual Terminals.

**References**

1. Computer Networks by A.S Tannenbaum
2. Data Communication and Networking :: Behrouz A. Forouzan; Mc-Graw Hill Pub.
3. Introduction to Digital and Data Communications, Michal A Miller, JAICO, publishing.
4. Data Communication and Networking: C.S.V. Murthy, Himalaya Publishing House

B.Voc. IT Skills and Software Development

Course : B. Voc. in ITSSD 6-Credits=90 Lectures = 30Practicals  
Paper Title: Practical-V (Practical based on p-18) Paper No. : SC1306P

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Practical Based on Paper No. SC1304T & SC1305T

ITSSD

Course : B. Voc. in

6-

Credits=90 Lectures = 30Practicals

Paper Title: Practical-VI (Advance Excel)

Paper No. : SC1307P

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1. Conditional Formatting
2. Loopup and References
3. Advanced formulas
4. Pivot Table
5. Pivot Chart
6. Data Tools
7. Macros

  
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B.Voc. IT Skills and Software Development



B.Voc.  
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Semester - IV

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD  
**Paper Title:** Business Statistics

**4-Credits=60 Lectures**  
**Paper No. : GC401T**

**Unit I :**

**Central Value and dispersion:**

Mode, Median, Mean, Range, Mean deviation, Standard deviation, Coefficient of variation.

**Frequency distribution:**

Frequency histogram, frequency curve, central value and dispersion in classified data, normal curve, mean and standard deviation, Normal deviate.

**Unit – II:**

**Sampling:**

Random sampling, sample means, standard error, Test of significance, t test.

**Correlation and Regression:**

Positive and Negative correlation, correlation coefficient, significance of Correlation coefficient, Regression; Linear and Non-linear regression.

**Unit – III**

**Analysis of variance:**

ANOVA, F test, standard error of difference, critical difference.

**Probability:**

Mutually exclusive events, Addition rule, mutually independent events, Multiplication rule, Dependent events, Binomial distribution Chi-square test,  $\chi^2$  test for goodness of fit.

**Unit – IV**

**Experimental design:**

Replication, Randomization, Local control, Randomised block design (RBD), Latin square design (LSD), Factorial experiments, Factorial RBD, split plot RBD.

**Use of computer for Analysis of Quantitative Data:**

Introduction, Computer organisation, Central processing unit, Programming languages, Computer programming, Computers for analysis of quantitative data.

**Text Books**

1. An Introduction to Biometry.
2. Fundamental of statistics.

B.Voc. IT Skills and Software Development

**Course : B. Voc. in ITSSD**

**4-Credits=60 Lectures**

**Paper Title: Industrial Psychology**

**Paper No. : GC402T**

**Unit I :**

**15L**

**Introduction:** - Meaning & the Scope of Industrial Psychology, Functions & Activities, Limitations & the Unique aspects of Industrial Psychology.

**Unit II :**

**Individual Differences in Behavior:** - Factor associated with differences in behavior individual versus situational variables, Importance of individual differences in jobs, The Effects of training upon individual differences, the basis of individual differences.

**Unit – III**

**Leadership:** - The need for Leadership, Approaches to studying Leadership, Functions of Leader, Types of Leaders (Behavioral & Contingency Theories of Leadership)

**Unit – IV**

**Motivation:** - Concept of Motivation, Motivation Theories (Maslow's Need Hierarchy Theory and Herzberg's Two-Factor Theory, Theory 'X' & Theory 'Y')

**Reference:**

1. Industrial Psychology — by M.L. Blums, J.C. Naylor  
— by P.K. Ghosh  
— by Norman R.F. Maier
2. Management & Organizations Behaviour— by Paul Hersey & Ken Blanchard
3. Essentials of Management— by Paul Hersey & Ken Blanchard
4. Principal and Practice of Management— by L.M. Prasad
5. Human Behavior at Work— by Kaith Devis
6. Organizational Behavior— by Robbins

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD  
**Paper Title:** E - Commerce

**4-Credits=60 Lectures**  
**Paper No. : GC403T**

**Unit –I**

Introduction, IT and business, E-commerce: Concepts, Benefits of E-Commerce; Types of E-Commerce, Advantages and Disadvantage of E-commerce, Electronic Communication, PCs and Networking, E-mail, Internet and intranets. EDI to E-commerce, EDI, UN/EDIFACT.

**Unit –II**

Concerns for E-commerce Growth, Internet bandwidth, Technical issues, Security issues, Legal issues. Roadmap of e-commerce in India.

Security Technologies: Encryption, Symmetric key Encryption, Public key encryption, Public key encryption using digital Signatures. Hashing techniques, Certification and key Distribution.

**Unit –III**

The elements of E-commerce. SSL-Secure Socket Layer, SET-Secure Electronic Transaction Protocol for Credit card payment, E-Cash, ECheck, Smart cards. Electronic Payment System: Digital Cash, Digital Wallets, Digital checking payment systems, Electronic Billing, Credit Card Based Electronic Payment Systems, Risks regarding Electronic Payment Systems.

**Unit-IV**

E-Marketing: The scope of E-Marketing, Internet Marketing Techniques, Online Marketing; Advantages of Online Marketing.

**References:**

**Textbook:**

1. E-Commerce: The Cutting Edge of Business, Kamlesh K. Bajaj & Debjani Nag, Tata McGraw Hill.
2. E- Commerce Strategy , Technologies and Applications, David Whiteley, McGraw Hill Edition

**Reference Books:**

1. E- Security, Electronic Authentication and Information Systems Security Sundeep Oberoi, TMG
2. E-Commerce Concepts, Models , Strategies by - G.S.V Murthy.

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD  
**Paper Title:** ERP

**3-Credits=45 Lectures**  
**Paper No. : SC1404T**

**Unit –I**

15L

Basic ERP Concepts, Enterprise-An overview, Benefits & Risk, Evolution and Structure: Conceptual Model of ERP, The Evolution of ERP, The Structure of ERP.  
ERP & Related Technologies:  
Business Process Reengineering (BPR),  
Data Warehousing and Data Mining, OLAP, Product Life Cycle Management, Supply Chain management, CRM.

**Unit –II**

15L

ERP Functional Module: Introduction,  
Finance, Manufacturing, Human Resource, Plant maintenance, Material Management,  
Integration of ERP, Supply Chain and Customer Relationship Application.

**Unit –III**

ERP Implementation:  
Implementation Challenges, ERP Implementation Strategies, ERP Implementation Life Cycle, Implementation Methodologies, ERP  
Projects Teams, Vendors and Consultants, Dealing with employee resistance, Training and Education, data migration, Project Management and monitoring, Post Implementation Activities

  
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B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD  
**Paper Title:** Software Engineering

**3-Credits=45 Lectures**  
**Paper No. : SC1405T**

**Unit –I**

**15L**

Coding, Top-down & Bottom-up, Structured Programming, Information Hiding, Programming Style, Internal Documentation, Verification, Metrics, monitoring & control

**Unit –II**

**15L**

Testing, Levels of Testing- Functional Testing, Structural Testing, Test Plan, Test Cases Specification, Reliability assessment

**Unit-III**

**15L**

Software Project Management, Cost Estimation, Project Scheduling, Software Configuration Management, Quality Assurance, Project Monitoring, Risk Management

**References**

1. Software Engineering- A Practitioners Approach, R. Pressman, McGraw Hill
2. An Integrated Approach to Software Engineering, Pankaj Jalote, Narosa

**Course :** B. Voc. in ITSSD  
**Paper Title:** Practical-VII

**6-Credits=90 Lectures = 30Practicals**  
**Paper No. : SC2406P**

Practical Based on Paper No. SC1404T & SC1405T

B.Voc. IT Skills and Software Development

**Course :** B. Voc. in ITSSD

**6-Credits=90 Lectures = 30Practicals**

**Paper Title:** Practical-VIII (PHP)

**Paper No. :** SC1407P

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Introduction to PHP, PHP Language Basics, The building  
Block of PHP  
Decision and loops, Arrays in PHP, Objects in PHP, functions  
in PHP types of functions  
Working with String, Date and Time, handling Forms  
(HTML).



B.Voc.  
(IT Skills and Software Development)  
Semester - V

  
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**Course :** B. Voc. in ITSSD      **Semester-V**      **4-Credits=60 Lectures**  
**PaperTitle:** Campus to Corporate      **PaperNo. 29: GC501T**

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**Unit-I** **20 L**

Business Etiquettes,

Etiquette Starts on the Phone, No Solicitation

Personal and Mass Emailing,

**Unit-II** **20 L**

Confidentiality and the Use of Company Funds and Equipment, Employee Theft – Though  
Shalt Not Steal, Dressing for work

**Unit-III** **20 L**

Nepotism in the Workplace, Disturbances, Insensitivity and Discrimination, Office Bullying,  
Entertaining Customer

**References**

Office Etiquette: The Unspoken Rules in the Workplace by Sonja L. Traxler

  
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**Course :** B. Voc. in ITSSD      **Semester-V**  
**PaperTitle:** Entrepreneurship Development

**4-Credits=60 Lectures**  
**PaperNo. 30: GC502T**

**Unit I : Entrepreneurial Development Perspective**

**15 L**

2. Evolution of the concept of Entrepreneur, Concepts of Entrepreneurship Development, Entrepreneur Vs. Entrepreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager, Attributes and Characteristics of a successful Entrepreneur, Role of Entrepreneur in development of Indian economy

**Unit II Business organizations:** - Meaning, types of business organization – Sole proprietorship, Partnership, Co-operative Society, Joint-Stock Company, Selection of an appropriate form of business organization. **15 L**

**Unit III Creating Entrepreneurial Venture.** Business Planning Process. Environmental Analysis - Search and Scanning Identifying problems and opportunities, Defining Business Idea. **15L**

**Unit IV : Project Identification & Report :-**

**15 L**

– concept of project - project identification – formulation –appraisal-selection  
implementation and management–preparation of project report

**REFERENCE BOOKS**

- 1) Vasant Desai : “The Dynamics of Entrepreneurial Development and Management, Himalaya Publishing House, Mumbai, Sixth Edition, 2010.
- 2) Khanka S. S., “Entrepreneurial Development”, Chand and Company Ltd, New Delhi, Third Revised Edition, 2001.
- 3) Prof. E. Gordon & K. Natarajan, “Entrepreneurship Development”
- 4) N.P. Singh, “Entrepreneurship Development”, - Theories & Practices.
- 5) M. Gangadhar Rao, “Entrepreneurship & Entertainment Development



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**Course :** B. Voc. in ITSSD  
**PaperTitle:** Business Economics

**Semester-V**

**4-Credits=60 Lectures**  
**PaperNo. 31: GC503T**

- 1) **Introduction:-** Meaning, Nature and Scope of Business Economics, Micro and Macro economics, its features and Importance. **10 L**
- 2) **Demand Analysis:-** Introduction, Concept of Demand, individual Demand market Demand, Factors affecting on Demand Types of Demand, Law of Demand, **15 L**
- 3) **Elasticity of Demand:-** Introduction, Concept ,types of elasticity of demand ,types of Price elasticity of Demand, factors Determining Elasticity of Demand, significance of Price Elasticity of Demand. **15 L**
- 4) **Producers Behavior :-** Introduction Concepts of Total Output, Stock and supply, Supply schedule, Determinants of market supply Law of supply, change in supply, Variation in supply, Concept of Elasticity of Supply and Types of Elasticity of Supply Measurement Determinants of Elasticity of Supply. Concepts of Cost, Total cost, Average cost and Marginal Cost. **20 L**

**Recommended Books :**

1. Managerial Economics - Analysis, Problems and Cases, P. L. Mehta, Sultan Chand and Sons, New Delhi.
2. Managerial Economics - Varshney and Maheshwari, Sultan Chand and Sons, New Delhi.
3. Managerial Economics - D. Salvatore, McGraw Hill, New Delhi.
4. Managerial Economics - Peterson and Lewis, Prentice Hall, New Delhi
5. Managerial Economics - G. S. Gupta , T M H, New Delhi.
6. Managerial Economics - Mote, Paul and Gupta, T M H, New Delhi.
7. Managerial Economics — D. C. Hague, Longmans.
8. Managerial Economics - Joel Dean, Prentice Hall, USA.
9. Managerial Economics - H L Ahuja, S Chand & Co. New Delhi.
10. A study of Managerial Economics – D.Gopalkrishna
11. Managerial Economics – D.C.Hauge
12. Managerial Economics – Reckie and Crooke
13. Managerial Economics, 4th Ed. – Craig Peterson

**Course :** B. Voc. in ITSSD  
**Paper Title:** Linux with Scripting

**3-Credits=45 Lectures**  
**Paper No. :** SC1504T

**Unit –I**

**15L**

**Shell Basics:**Types of shells,Shell functionality,Environment

**Writing first script:** Writing script & executing basic script,Debugging script,Making interactive scripts,Variables (default variables),Mathematical expressions

**Unit –II**

**15L**

**Conditional statements:**If-else-clif,Test command,Logical operators-AND,OR,NOT,case –esac

**Loops:** While,For,Until,Break & continue

**Functions & file manipulations:**Processing file line by line,Functions

**Regular Expression & Filter:**What is regular expression,Grep,cut ,sort commands,Grep patterns

**Unit-III**

**15L**

**SED & AWK**

**Processes:**Concept of process in Unix,Background processes,Scheduling processes -At, batch & Cron

**References**

- 1.Unix –Sumitabha Das
- 2.Unix Programming Guide- Steven Prata

  
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**Course :** B. Voc. in ITSSD

**3-Credits=45 Lectures**

**Paper Title:** Network Security and Cyber Law

**Paper No. :** SC1505T

**Unit –I**

**15L**

**CCNA Fundamentals:**

**Network Devices:**

**Routing Protocols:**

**Unit –II**

**15L**

**Network Protocols:**

TFTP

FTP

SMTP

HTTP

HTTPS and SSL Handshake

SFTP

SCP

IMAP and POP3

Directory Services such as LDAP or Active Directory

**Unit-III**

**15L**

**Web Application Security Theory**

**Cryptography**

**References**

1.Unix –Sumitabha Das

2.Unix Programming Guide- Steven Prata

  
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**Course :** B. Voc. in ITSSD  
**Paper Title:** Practical-IX

**6-Credits=90** Lectures = 30Practicals  
**Paper No. :** SC1506P

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Any 15 Practical Based on Paper No. SC1504T

Any 15 Practical Based on Paper No. SC1505T

**Course :** B. Voc. in ITSSD

**6-Credits=90** Lectures = 30Practicals

**Paper Title:** Practical-X (S/W Testing Tools)

**Paper No. :** SC1407P

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Two Software Testing tool and

practical based on all aspects of software testing tools.

  
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B.Voc.  
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Semester - VI

  
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**Course :** B. Voc. in ITSSD      **Semester-VI**      **4-Credits=60 Lectures**  
**PaperTitle:** Research Methodology      **PaperNo. 36: GC601T**

**Unit- I**

**20L**

Concept of Research – objectives, Motivation, Importance & types of research

Scientific method – Steps involved in a process of research.

Experimental method- Definition, characteristic, and steps involved, difficulties in experimental method, advantages & limitations.

**Unit-II**

**20L**

Research Problem

Meaning of research problems, sources of research problems criteria/ characteristics of a good research problems, errors in research problems.

Hypothesis formation

**Unit-III**

**20L**

Sources of data – Primary data – advantages & disadvantages –sources of primary data, Secondary data – advantages & disadvantages- sources of secondary data. Observation – meaning & characteristics, types , advantages & disadvantages

Information Technology And Library Resources

The internet and world wide web, internet resources for chemistry, using spreadsheets, word processors, databases and other packages, finding and citing information

**Unit –IV :- Communicating Information**

**20L**

General aspects of scientific writhing, writing essays, reporting practical and project work, writing literature surveys and reviews, organizing a poster display, giving an oral presentation examinations

**Reference Books:-**

Research Methodology, Methods & Techniques by C.R. Kothari.

  
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**Course :** B. Voc. in ITSSD      **Semester-VI**      **4-Credits=60 Lectures**  
**PaperTitle:** Human Resource Management      **PaperNo. 37: GC602T**

**Unit I -** Introduction to Human Resource Management - Concept, Nature, Scope, Significance, Objectives and Functions of HRM.      **15 L**

**Unit II –** Human Resource Planning (HRP) - Meaning and need for Human resource Planning - Process of HRP - Factors affecting HRP. –Job Analysis -Recruitment and selection – Meaning, - Sources of recruitment      **15 L**

**Unit III -** Employee Training - Meaning and need for training - Steps in training - Methods of Training – Impediments of effective training      **15 L**

**Unit IV -** Performance Appraisal and Merit Rating - Meaning and purpose of performance appraisal - Methods of performance appraisal - Ethics in performance appraisal – Merit Rating – Meaning, Benefits of Merit Rating – Difference between performance appraisal and merit rating      **15 L**

**Books Recommended: -**

Principles of Personnel Management — by Edwin B Philpo

Management of Organization Behaviour — by Paul Harsey K. Blanchard

Personnel/Human Resource Management \_\_ Decenza & David

Human Resource Management- P.Subbarao

Human Resource Management: R.S.Triwedi

Human Resource Management — by C.V. Subramaniam

K Ashwathappa : Human Resource Management, Tata McGraw Hill, New Delhi

  
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**Course :** B. Voc. in ITSSD      **Semester-VI**      **4-Credits=60 Lectures**  
**PaperTitle:** Principles of Marketing      **PaperNo. 38: GC603T**

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- 1. Marketing Concepts** – Approaches to Marketing –Core concepts of marketing - Marketing Process – Functions of Marketing **15 L**
- 2. Marketing Environment**– The changing marketing environment – Analyzing, needs and trends in Macro Environment and Micro Environment **15 L**
- 3. Market Segmentation** – Bases for market segmentation of consumer goods, industrial goods and services – Market Targeting and positioning strategies Marketing Mix – Four P's – Its significance in the competitive environment **15 L**
- 4. New Product Decision Process** – Types of new products Product and Product Line – Product Mix – Product Life Cycle – Managing the product in Product Life Cycle, Test Marketing of a new product, Packaging – Purpose, Types and New Trends in packaging **15 L**

**Reference Books Recommended**

1. Marketing Special Indian Edition- Dhruv Grewal, Michael Levy
2. Marketing - Stanton,,Michael Etzel, Walker(Tata )
3. Marketing Management - V.S.Ramaswamy and S.Namakumari
4. Principles of Marketing 9th Edition - Philip Kotler and Gary Armstrong
5. Marketing - Bovee and John Thill
6. Marketing Models - Lilien & Kotler & Moorthy
7. Case Studies in Marketing – Indian context - R.Srinivas
8. Marketing Management Text And Cases in Indian Context-Dr.K.Karunakaran
9. Marketing Management Text and Cases-Biplab Bose
10. Marketing Management -S.A. Sherlekar13th Edition
11. Product Management S.A.Chunawala
12. Marketing Management - Philip Kotler

  
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Course : B. Voc. in ITSSD  
Paper Title: In Plant Training & Project  
12-Credits= 180 Lectures/Practicals  
Paper No. : SC1604TP

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Candidate should work in a IT or IT enabled industry and to have hands on experience on software development/Networking/ERP etc.  
A project should be carried out by the student to cater the need of that industry.

Project report should contains all SDSLC phases viz.

1. Analysis
2. Designing
3. Coding
4. Testing
5. Implementation

Course : B. Voc. in ITSSD  
Paper Title: Seminar  
6-Credits=90 Lectures = 30Practicals  
Paper No. : SC1407P

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Seminar based on 3 current IT topics should be delivered

Duration of the seminar 12 min.

  
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