# CONTENTS

1. Unique Features ...........................................................................................................
2. Vision, Mission, Goals, Core Values, Quality Policy ..............................................
3. Organisational Structure ..............................................................................................
4. Foreword from the Director ......................................................................................
5. From the Desk of Dean Academic ............................................................................
6. Deans, HODs and Heads ...........................................................................................
7. Faculty Teaching F.Y.B.Tech Courses ..................................................................
9. Programmes @ RIT ....................................................................................................
10. Rules and Regulations for Undergraduate Degree Programmes .......................... 49
    Teaching & Evaluation Scheme for F. Y. B. Tech. Common to all Branches
11. Summery of Courses ................................................................................................. 53
12. Useful Resources at a Glance .................................................................................. 92
13. Department - Wise List of Faculty Advisors ......................................................... 94
14. Scholarship Criteria Details ..................................................................................... 95
15. Student Counseling Cell ......................................................................................... 96
16. Anti Ragging Committee ......................................................................................... 97
17. Vishakha Cell ........................................................................................................... 99
19. Institute Achievements .............................................................................................
Hearty Congratulations!

We experience immense pleasure to welcome you as the fifth batch under the autonomous structure, which RIT has implemented in the Academic Year 2011-12. I must congratulate you for getting admission in an Institute which has ranked 75th at national level and 7th at state level in national institutional Ranking Framework (NIRF) by MHRD Government of India through AICTE.

The thought of becoming an engineer must have made you explore many engineering colleges for their quality and excellence based on the infrastructure, faculties, teaching-learning process, research outcomes and placements. Also, you must have wondered about what is the speciality of an Autonomous Institute? This handbook is an attempt to make you aware of first year courses and rules and regulation for autonomous RIT.

The Orientation Program is meant to make you aware of the fundamental procedures and know-how to have first-hand knowledge of the practices of the First Year Engineering Course. This handbook offers a ready reference of the things needed for you throughout your four year engineering course. It is a prerequisite of a student entering such an educational system which is different than the traditional one in many aspects. We are offering hereby very useful document that will help you to become an informed student of this system.
Feel yourself blessed to have entered in this institute having 32 years of glorious academic past and a new history of its success started with autonomous status. You have to make yourselves wide open intellectually to gain the facilities we provide. You have to create opportunities from every event here because the seeds of opportunities are invisibly scattered everywhere in the campus.

Institute has successfully completed four years of academic autonomy given by UGC and Shivaji University, Kolhapur. Introduction of changes in curriculum of First Year B. Tech like learning Engineering Graphics in AutoCAD, Mini Projects, Communication Skills through Language Laboratory, Choice Based Credit System (CBCS) etc. and timely revisions in it as per the needs of advancement and changing scenario of industry resulted in satisfaction and enjoyment at both student and teacher’s end.

It is my appeal to you to learn the things essential from this handbook and become a part of this corridor of technical knowledge.

With BEST WISHES.

Dr. Mrs. S. S. Kulkarni
Director
RIT, Islampur
Greetings and congratulations from the academic unit of RIT for all the first year B Tech students who secured admission to autonomous RIT for 2016-17.

Exponential growth of engineering institutions in India, although provide opportunity for young aspirants to opt for engineering career, pose enormous challenges to develop competent engineering graduates with knowledge, skills and ethical standards for global careers. There exists a wide gap between the expectations of industry form engineering graduates and the knowledge, skills and competency the students possess leading to reduced employability. RIT being an autonomous institute is sensitive to this issue and proactive in bridging the gap through interaction with industries.RIT embraced Outcome Based Education (OBE) to prepare students for careers that demand high level of competencies.RIT set in to dynamics of transformation and witnessing a shift in focus from teaching to learning and entire academic system of RIT is designed to provide multiple learning opportunities for students to acquire and demonstrate the knowledge, skills and competencies for rewarding careers.

RIT, initiated steps to transform teaching-learning process to make learning a joyful experience for students. We firmly believe in IUCCEE Mantra “I am teaching, are they (students) learning. Say What You Do, Do What You Say. Prove it and improve it.” This shift of focus from teaching to facilitated learning started yielding good results. Academic Audit captures the class dynamics in terms of students learning styles, teaching strategies, learning outcomes and obstacles in learning. Understanding of learning styles of students is a pre-step in devising appropriate teaching strategies.

RIT witnessed a historic moment on the First graduation ceremony of M.Tech and MBA autonomous batch students in the presence of Padma Vibhushan Ratan Tata who inspired the students to make a difference in life of people through innovations and commitment to the profession.
RIT is accorded the status of academic autonomy from the year 2011-12, which we look towards as great opportunity to design and implement curriculum sensitive to needs of Business and Industries, introduce innovative evaluation system to make students learn they are expected to learn (learning outcomes). The RIT model of Autonomy focuses on “Experiential learning model which believes in learning by doing. This is achieved through hands on experience, industrial assignments miniprojects and live problem solving.

Within a short span of two years of autonomy, we could be able to design and implement the robust academic systems to raise the bar of academic standards with the active involvement and cooperation from students, academic and administrative units. Faculty and technical and administrative staff of RIT deserve a special appreciation for their relentless efforts to give a joyful learning experience to students. The delivery and evaluation systems are in the continuous process of transformation to bring in highest level of quality and transparency in assessment of students.

RIT is making all-out efforts to inculcate research and innovation culture amongst faculty and students and nurturing the creative talent of students by providing the infrastructure and ambience for research.

Our efforts are always in the direction to develop an overall personality of students with ethical and moral values to make them a competent technical manpower for employment and self employment. We always hope and look forward for joyful learning experience for students and RIT should be the first Choice for both students who value learning as an experience and also faculty who have a passion to create a great learning environment.

Looking forward for your active cooperation and constructive feedback to make RIT a great campus for learning. We are optimistic about RIT carving a niche for itself as a “First Choice of engineering aspirants.”

Dr. Martand T. Telsang
Professor and Dean Academic
K. E. Society’s  
Rajarambapu Institute of Technology, Sakharale  
(An Autonomous Institute affiliated to Shivaji University, Kolhapur)  

Academic Calendar: 2016-2017  
First Year B.Tech. Semester I

<table>
<thead>
<tr>
<th>Week No.</th>
<th>August 2016</th>
<th>Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S</td>
<td>M</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>28</td>
<td>29</td>
</tr>
</tbody>
</table>

Academic Days: 21  

<table>
<thead>
<tr>
<th>September 2016</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>M</td>
<td>T</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>8</td>
<td>25</td>
<td>26</td>
</tr>
</tbody>
</table>

Academic Days:23  

<table>
<thead>
<tr>
<th>October 2016</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>M</td>
<td>T</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>13</td>
<td>30</td>
<td>31</td>
</tr>
</tbody>
</table>

Academic Days: 22  
<table>
<thead>
<tr>
<th>November 2016</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date</strong></td>
<td><strong>Actions</strong></td>
</tr>
<tr>
<td>13 Nov. 3-5</td>
<td>Unit Test 2 Answer Paper showing, display of marks &amp; Submit copy of marks to Dean Academics</td>
</tr>
<tr>
<td>14 Nov. 7-11</td>
<td>ISE-II as per plan by course teacher.</td>
</tr>
<tr>
<td>15 Nov. 17-19</td>
<td>Review of UT 1 &amp; UT2 results by HOD and sending marks to COE through DEC.</td>
</tr>
<tr>
<td>16 Nov. 21-25</td>
<td>Finalisation of ISE for Theory and practical courses.</td>
</tr>
<tr>
<td>17 Nov. 29</td>
<td>End of ‘Instructional Activities’ for Semester: I.</td>
</tr>
</tbody>
</table>

Academic Days: 24  Probable Holidays: Bhabhij 1st Nov, Guru Nanak Birthday 14th Nov
Total Academic Days: 90

<table>
<thead>
<tr>
<th>December 2016</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date</strong></td>
<td><strong>Actions</strong></td>
</tr>
<tr>
<td>17 Dec. 1-2</td>
<td>Display of defaulter students in ‘Semester: I’</td>
</tr>
<tr>
<td>18 Dec. 3</td>
<td>Declaration of XX grade by department.</td>
</tr>
<tr>
<td>19 Dec. 6</td>
<td>Submission of ‘XX’ grade &amp; detention list to COE office through ADC.</td>
</tr>
<tr>
<td>19 Dec. 7-21</td>
<td>ESE for Theory course of Semester I</td>
</tr>
<tr>
<td>20 Dec. 22-28</td>
<td>ESE for Laboratory courses.</td>
</tr>
<tr>
<td>21 Jan 2nd</td>
<td>Declaration of result for Semester: I</td>
</tr>
</tbody>
</table>

January 2nd, 2017  Commencement of ‘Instructional Activities’ for Semester: II.
<table>
<thead>
<tr>
<th>Date</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Academic Rules and Regulations
For
Undergraduate Degree Programs (B.Tech.)

♦ July 2016 ♦

(As per the resolutions of 7th Academic Council meeting held on Saturday, 18th June, 2016 and implemented from academic year 2016-17 for all classes)
Kasegaon Education Society’s “Rajarambapu Institute of Technology” Rajaramnagar, Sakharale, Tal. Walwa, Dist. Sangli was established as a self financed Engineering College in 1983. It is affiliated to the Shivaji University, Kolhapur, recognized by Government of Maharashtra and approved by All India Council for Technical Education, New Delhi. The objective is to provide excellent technical education for producing high quality engineering manpower for industry and to promote academic excellence through research and development.

RIT in its autonomy model makes a sincere effort to adopt an experiential learning model (ELM) which focuses on learning by doing. Experiential learning provides opportunity for the students to experiment and learn better by doing. The curriculum will be designed keeping in mind the hands on experience through extensive experimentation through lab work, plant visits, in-plant training, mini projects and projects in industries. A judicious mix of theory and practices will make RIT students as preferred prospective employees. RIT as an autonomous Institute functions with the objectives of promoting academic freedom and scholarship on the part of teachers and students which are essential for fostering and development of intellectual ambiance conducive to the pursuit of scholarship and excellence. The focus of the Institute is always student centric and the endeavor shall be to ensure that student’s get the best of what is required to create Outstanding Engineers. RIT has implemented the outcome based Education (OBE) system.
This booklet gives comprehensive information on the existing rules and regulations for B.Tech. programs for all the branches of Engineering. All the undergraduate programs are governed by these rules and regulations. The various departments are given opportunities to excel in academics through these rules and regulations approved by academic council from time to time keeping in view the changing industrial and business scenario and the new challenges and developments in technology. The stakeholders, specially students, are advised to be fully familiar with the regulations governing academic requirements, evaluation and grading system.

Rajarambapu Institute of Technology is committed to provide multiple learning opportunities to students for their academic progress and promote activities that foster student scholarship.

Dean Academic

Director
# INDEX

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Definitions</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Introduction</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Admissions</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Academic Calendar</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>Attendance</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>Curriculum</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>Facilitation to students</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>Discipline and Conduct</td>
<td>19</td>
</tr>
<tr>
<td>9</td>
<td>Course Evaluation</td>
<td>21</td>
</tr>
<tr>
<td>10</td>
<td>Grading System</td>
<td>27</td>
</tr>
<tr>
<td>11</td>
<td>Calculation of Performance Indices</td>
<td>37</td>
</tr>
<tr>
<td>12</td>
<td>Procedure to show Theory ESE Answer Books</td>
<td>40</td>
</tr>
<tr>
<td>13</td>
<td>Academic Progress Rules (ATKT Rules)</td>
<td>41</td>
</tr>
<tr>
<td>14</td>
<td>Semester Grade Report</td>
<td>42</td>
</tr>
<tr>
<td>15</td>
<td>Award of Degree</td>
<td>43</td>
</tr>
<tr>
<td>16</td>
<td>Grade/CPI Improvement Policy for award of Degree</td>
<td>44</td>
</tr>
<tr>
<td>17</td>
<td>Grade Improvement Policy</td>
<td>45</td>
</tr>
<tr>
<td>18</td>
<td>CPI Improvement after completion of Pre-requisite credits for the award of degree</td>
<td>46</td>
</tr>
</tbody>
</table>
# 1. DEFINITIONS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institute</td>
<td>Means Rajarambapu Institute of Technology, Rajaramnagar</td>
</tr>
<tr>
<td>BoG</td>
<td>Means Board of Governors of the Institute</td>
</tr>
<tr>
<td>University</td>
<td>Means Shivaji University, Kolhapur</td>
</tr>
<tr>
<td>Academic Council (AC)</td>
<td>Means apex academic body governing the academic programs and framing rules and regulations.</td>
</tr>
<tr>
<td>Board of studies (BoS)</td>
<td>Departmental academic body to govern the academics of programs offered by department.</td>
</tr>
<tr>
<td>Semester</td>
<td>Means period in which academic activities are carried out.</td>
</tr>
<tr>
<td>Summer Term</td>
<td>Means a period during summer vacation during which remedial classes are conducted.</td>
</tr>
<tr>
<td>Course</td>
<td>Means Theory / Practical / Seminar / Projects / Mini Projects / Industrial Training</td>
</tr>
<tr>
<td>Course Credit</td>
<td>Means Weightage assigned to the course.</td>
</tr>
<tr>
<td>Grade</td>
<td>Means a double letter assigned to indicate the student’s performance in a course.</td>
</tr>
<tr>
<td>DPC</td>
<td>Departmental Program committee</td>
</tr>
<tr>
<td>Course Instructor</td>
<td>Member of faculty who shall be assigned to a course</td>
</tr>
<tr>
<td>SPI</td>
<td>Semester Performance Index</td>
</tr>
<tr>
<td>CPI</td>
<td>Cumulative Performance Index</td>
</tr>
<tr>
<td>ATKT</td>
<td>Allowed To Keep Terms</td>
</tr>
<tr>
<td>BoE</td>
<td>Board of Examination</td>
</tr>
<tr>
<td>HoD</td>
<td>Head of the Department</td>
</tr>
<tr>
<td>DPC</td>
<td>Departmental Program committee</td>
</tr>
<tr>
<td>UG</td>
<td>Undergraduate 4 years, 8 semester program leading to (B. Tech.)</td>
</tr>
<tr>
<td>Academic RR</td>
<td>Rules &amp; regulations governing academic system of the institute</td>
</tr>
<tr>
<td>AICTE</td>
<td>All India Council for Technical Education - An apex body in Technical Education In India</td>
</tr>
</tbody>
</table>
2. INTRODUCTION

RIT has been offering undergraduate (UG) program leading to Bachelor’s degree (B. Tech.) since last 30 years. The undergraduate Programs offered and degrees obtained are listed as shown in Table 2.1. The admission to UG program which shall be of eight academic semesters is as per the norms set by All India Council For Technical Education (AICTE), New Delhi, the competent Authority of the Government of Maharashtra/ Directorate of Technical Education, Mumbai / Shivaji University, Kolhapur and which shall be prevailing at the time of admission.

Table 2.1 Programs offered and Degrees Awarded

<table>
<thead>
<tr>
<th>Program</th>
<th>B. Tech Degree in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile Engineering</td>
<td>Automobile Engineering</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>Computer Science &amp; Engineering</td>
<td>Computer Science &amp; Engineering</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>Electronics &amp; Telecomm. Engineering</td>
<td>Electronics &amp; Telecomm. Engineering</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Mechanical Engineering</td>
</tr>
</tbody>
</table>

2.1 All the undergraduate Degree programs shall be governed by the rules and regulations provided in the version of the academic RRs. UG Program curriculum consists of courses in Sciences, Humanities and Social Sciences, Engineering and Technology and other related areas. The stringent evaluation norms shall be followed to maintain the quality of education. The examination system is governed by examination rules and regulations and completely transparent and follows the pre announced schedule as per academic calendar.
2.2 **Semester**: RIT, Rajaramnagar implements a credit based semester system. The academic year is divided into two regular semesters. The semester that begins in July is named as odd semester and the semester that begins in January is known as even semester. Total duration of each semester is generally of 20 weeks including the period of examination, evaluation and grade declaration.

2.3 **Summer Term**: There is a provision of one additional session during summer vacation known as summer term. The institute shall run this semester for theory courses, subject to sufficient number of students registering for the course and the availability and consent of the concerned faculty member. The purpose of the summer term is to provide an opportunity to the students to clear his/her backlog, if any. The examinations for the courses taught in summer term shall be conducted thereafter. Summer term has the following norms:

(a) Departments shall have the flexibility to conduct summer semesters for F.Y. and S.Y. B.Tech. courses only during summer vacation, as per the Academic Calendar. Such a semester shall be offered on the recommendation of DPC and with the approval of the Dean, Academics. A student shall be allowed to register for a maximum of three subjects in a summer term. The laboratory courses are not conducted as part of summer course.

(b) The summer term shall be utilized primarily to facilitate the failed students to attend the courses in which they have failed and not for launching any new courses for credit. However, a department shall be free to arrange any **add-on** courses for its students during this semester audit courses.

(c) The academic activity in the summer term shall be at double the rate as compared to a normal semester; e.g. 1 credit of course work shall require two hours/week in
the class room, so that the contact hours are maintained at the same as in a normal semester. It shall also be necessary to fulfill the requirements of ISE, UT1, UT2 and ESE for all the courses like in a normal semester.

(d) Courses planned for the summer term shall be announced by the Dean Academic in each year, well before the conclusion of the even semester. Students intending to avail of this facility shall have to register for the courses offered by paying the prescribed fees within the stipulated time.

(e) It shall be the responsibility of the department to plan in advance the faculty and non-teaching staff requirements to conduct the summer term and take necessary steps including the institutional approvals for organizing the same.

(f) The students who are either dropped or detained in the course/s during regular semester are not allowed to register for that course/s in summer term.

(g) In exceptional cases, Dean Academics may offer courses from T.Y. and Final year in summer term based on the recommendations of DPC of the department. But, it is not the regular practice.

2.4 The rules and Regulations mentioned in the documents are applicable to all the UG programs (B.Tech.) offered by the institute.

2.5 The rules and regulations stated here under are subjected to revisions/refinements/updates and modifications/amendments by Academic Council (AC) from time to time and are applicable to all the further batches including those already undergoing programs at different years and are binding on all stakeholders including students, parents, faculty, staff and institute authorities.
2.6 The academic administration of the institute consists of committees and administrators. The committees are AC, BoS, BoE, ADC and administrators are Director, Deans, Heads of departments (HoDs), Heads of Programs (HoPs), Registrar and Controller of Examinations (CoE).

2.7 The academic programs of the institute shall be governed by rules and regulations approved by Academic Council from time to time. AC is the supreme and statutory academic body that governs all academic matters of the institute and the decisions of the AC chairman (Director of the Institute) shall be final in matters relating to academic matters. All academic activities are scheduled through an approved academic calendar notified at the beginning of each academic semester/year.

3. ADMISSIONS

3.1 **Regular and Lateral Entry:** Regular entry refers to admission of students for first, second (excluding lateral entry) third and final year of the program in odd semesters. Lateral entry refers to admission of students for second year directly through diploma qualification.

3.2 The admissions process and eligibility to various B.Tech. programs for regular entry (first year) and lateral entry (second year) are governed by the norms and procedures laid down by the government of Maharashtra.

3.3 Each student shall be allotted permanent registration number (**PRN**) during admission and that will be permanent identification number. This number shall not change and the allotted number shall not be offered to any other student even after cancellation of admission. The number shall be valid till the student completes the program or cancels admission or is removed from the institute.
3.4 Admission according to rules should be carried out as per the schedule announced by the administrative office. Late registration may be permitted only for valid reasons and on payment of late registration fees. In any case, registration must be completed before the prescribed last date for registration, failing which his/her studentship shall be liable to be cancelled. Students having dues outstanding towards the institute or hostel shall be permitted to register only after clearing such dues.

3.5 For admission in an odd semester, the student must have earned all the credits of the pre-previous year and at least ATKT in previous year. For example, for admission to the 5th semester (i.e. 3rd year of program), a student must have earned all the credits of the first year and second year or must have earned all the credits of the first year and ATKT in second year. Similarly for admission to the 7th semester (i.e. 4th year of program), a student must have earned all the credits of the second year and must have earned all the credits of the third year or ATKT in third year.

3.6 A student registered in odd semester shall be eligible to admission to the courses offered in the even semester of that year irrespective of his/her SPI or the number of credits earned by him/her in that odd semester. But can’t be permitted to register for even semester if he is detained in odd semester.

3.7 Second Year Lateral Entry: Post diploma students can have lateral entry at third semester of the program. Such admissions are governed by the rules of DTE, Mumbai. Such students shall undergo all academic requirements as specified by the Academic Council.

For such students there shall not be First Year Performance Index (FYPI). Semester Performance Index (SPI) and Cumulative Performance Index (CPI) shall be calculated from the third semester onwards taking into consideration the courses undergone by them at RIT, Rajaramnagar.
3.8 **Entry of Students from University Pattern to Autonomous Pattern:** A student of RIT, Rajaramnagar admitted in pre-autonomous status can become eligible for admission in autonomous status only in odd semester (i.e. in Semester I or III or V or VII) when he/she clears the backlog or fulfills the prevailing ATKT norms of Shivaji University, Kolhapur. After taking admission in autonomous RIT, Rajaramnagar, such students shall clear backlog subjects (courses) of Shivaji University curriculum, if any, by appearing for the respective examinations of Shivaji University, Kolhapur. Further, they shall undergo additional academic requirements (bridge courses) as specified by the Department Program Committee (DPC) of the respective department so as to have tuning with RIT, Rajaramnagar autonomous curriculum. The students who have obtained condone in any of the subjects of university curriculum by Shivaji University, Kolhapur shall be considered to have cleared that subject. All such students shall not be eligible for any medals or awards instituted by the institute.

3.9 **Change of Program:** Students shall be eligible to apply for change of program after completing the first two semesters. The following rules/ guidelines shall be used for considering their applications for change:

i. The change of program shall be permitted strictly on merit basis subject to the rules of admissions prevailing at the time of such change.

ii. Students without **Fail** grades and/or backlogs shall be eligible to apply for change of program and can give their choices in the order of preference.

iii. The request for change of program by a student from program A to program B shall be considered if number of students of program B does not exceed the sanctioned capacity of program B.

iv. All such transfers can be effected only once at the beginning of the second academic year of the 4-year UG program. No application for change of program during subsequent academic years shall be entertained.
v. There is no change in PRN number of students availing the facility of branch change.

3.10 **Temporary Withdrawal:** A student shall be permitted to withdraw temporarily from the program of study for the reasons beyond the control of student. The applicable rules are:

i. The withdrawal shall be considered for complete semester or complete year.

ii. The student shall apply to Dean Academics for such withdrawal stating the reasons for such withdrawal, along with supporting documents, consent from parents in writing duly recommended by HoD of the program department and clearance /no due certificate from all concerned sections and departments.

iii. Dean academics shall pursue the case and recommend for the approval from AC.

iv. Normally, a student will be entitled to avail temporary withdrawal facility only once during the program. However, request for any further withdrawal for concerned student shall have to be approved by AC.

3.11 **Termination from the Program:** A student shall be terminated from the program in the following cases:

i. Involved in ragging and not obeying discipline stipulated by the institute.

ii. If a student is unable to gain all credits of first year in three years from the date of his/her admission, then he/she shall be declared as “**Not Fit for Technical Education**” (NFTE) leading to discontinuation of his/her registration with the institute. Such cases are to be brought to the AC meeting by the Registrar. Depending upon the academic progress of a student, AC may take a decision regarding continuation or discontinuation of his/her registration with the institute.

iii. **Not Completing the Program in Prescribed Period:** Maximum duration for getting B.Tech. degree for students admitted in the first semester of UG program
shall be 12 semesters (six academic years) while for lateral entry students admitted in the third semester shall be 10 semesters (five academic years) from their date of admission. The maximum duration of the program includes the period of withdrawal, absence and different kinds of leaves permissible to a student but excludes the period of rustication of a student from the institute. However, genuine cases on confirmation of valid reasons may be referred to Academic Council for extending this limit by additional one year. Such student will be declared as Failed to complete B.Tech. program.

4. ACADEMIC CALENDER

The academic activities of the institute are regulated by Academic Calendar and are made available to the students/ faculty members and all other concerned in electronic form or hard copy. It shall be mandatory for students / faculty to strictly adhere to the academic calendar for completion of academic activities. The copy of the academic calendar is also uploaded on the institute website.

4.1 The academic activities of the institute are governed by academic calendar prepared by coordinator (Academic planning and Monitoring) and approved by Dean Academics in consultation with Director. It shall be notified at the beginning of the each academic year. Academic calendar refers to schedule of commencement of instruction for the semester, course delivery period, examinations/evaluation, other academic activities, holidays and student major activities schedule.

4.2 The curriculum shall be typically delivered in two semesters in an academic year. Each semester shall be of 20 weeks duration including curriculum delivery evaluation, and grade declaration. The exact days are mentioned in academic calendar.

4.3 The minimum teaching days in an academic year are 180 and 90 each in the two
semesters. The academic calendar is strictly adhered to and all other activities including co-curricular and extra-curricular activities should be scheduled so as not to interface with the curricular activities as stipulated in the academic calendar.

4.4 The non-conduct of academic activities on any particular teaching day for whatever reason shall be compensated by having the academic sessions conducted on suitable Saturdays by following the particular class time table of the lost teaching day.

5. ATTENDANCE

5.1 Regular 100% attendance is expected of all students for every registered course in lectures, tutorials, laboratory, seminar, mini-project and project etc. Hence attendance is compulsory and shall be monitored in the semester rigorously. Students shall be informed at the end of every month if they are falling short of attendance requirement.

5.2 A maximum of 25% absence for the attendance may be permitted only on valid grounds such as illness, death in the blood relation family (father, mother, sister and brother) or other emergency reason which is beyond control of a student and shall be approved by the DPC of respective department. Sanction for such absenteeism shall be taken from the DPC Chairman of the respective department (in case of S.Y., T.Y. and final year students) while, from HOD, First Year Engineering (in case of F.Y. students) within a period of maximum one week after availing such leave.

5.3 Maximum number of days of absence for students participating in Co-curricular activities/Sports/Cultural events during a semester shall not exceed 10. Any waiver in this context shall be on the approval of the Academic Development Committee (ADC) only after the recommendation by Dean Student Development.

5.4 DPC Chairman shall report and recommend to ADC the cases of students not having 75% attendance as per the records of course Instructor. After rigorously analyzing these cases, ADC may take a decision to debar such student from End-Semester Examination
(ESE) for that course and XX grades will be awarded. Such a student shall re-register for that course as and when it is offered next. ISE and UT1 and UT2 evaluations of such a student for this course during regular semester shall be treated as null and void.

6. CURRICULUM

6.1 Curriculum: Every program has a prescribed course structure which, in general, is known as Curriculum of program of study. It prescribes courses to be studied in each semester with credits assigned to courses and teaching hours, evaluation scheme and minimum requirements for earning credits. The curriculum revisions/revamping shall be a continuous process governed by OBE framework and guidelines from AICTE, UGC from time to time. The booklet containing courses structure along with detail syllabus for each course of each program is updated periodically and made available to the students. The curriculum design follows the guidelines given by AICTE model curriculum.

6.2 Curriculum Content: The medium of instruction for course work and examinations at the college shall be English. The course work for the Program shall be broadly divided into six main subject groups, as follows:

- Humanities and Social Sciences;
- Professional Science Courses: Basic Sciences including Mathematics;
- Basic Engineering Sciences and Practice;
- Professional Subjects;
- Liberal Learning Courses

The total course package for the Program at a department shall have the following components:

- Institutional Core subjects
- Departmental Core subjects
- Departmental Elective subjects
- Open Elective subjects
Course content for a 3 credit course contains six units having uniform weightage to each unit.

6.3 Course Credit System/Structure: In general, a certain quantum of work measured in terms of credits is laid down as the requirement for a particular program. Calculation of number of credits for a course in any semester is as per Table 6.1

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture of 1 hour/week</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Tutorial of 1 hour/week</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Practical / Laboratory / Drawing/ of two hours/ week</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Seminar/Mini project (1 hour per week)</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 6.1 Calculation of number of credits for a course

There are mainly two types of courses viz. Theory courses and Laboratory courses. Generally, a theory course consists of Lecture hours (L) and Tutorial hours (T). Tutorial hours may not be assigned to a particular theory course if it has a separate laboratory course. Laboratory course consists of practical hours (P) which a student works in a Laboratory/Drawing Hall/Workshop. The other courses required to be taken by a student include seminar, mini project, and project at various levels of the program and also industrial training /internship.

6.4 Course Description: A typical description of course syllabus shall consist of course code, course title, teaching hours per week for lecture/practical/tutorials/seminar and project, credits, course outcomes with proper levels of Bloom’s Taxonomy and assessment scheme.

6.5 Requirements for Earning Course Credit: A student shall earn credits for a particular course by fulfilling the minimum academic requirements for attendance and evaluation.
No credits shall be awarded if a student satisfies the minimum attendance requirements but fails to meet minimum evaluation requirements.

6.6 **Total Credits to Earn the Degree**: The total number of credits required for completing an undergraduate program is approximately 192. The total number of credits in a semester which a student registers shall generally be 23-25. The maximum number of credits per semester shall not exceed 30, subject to approval by Department Program Committee (DPC) and Dean Academics. The exact number of credits required to complete the program are mentioned in course structure of the program.

6.7 **Audit Course**: A student is required to complete an audit course specified in a semester which could be institute requirement or department requirement. An audit course may include either a) a regular course required to be done as per structure or required as pre-requisite of any higher level course or b) the programmes like practical training, industry visits, societal activities etc, as specified from time to time.

Audit course shall not carry any credits but shall be reflected in Grade Card as “PP”/”NP” depending upon the satisfactory performance in the in-semester evaluation and any other evaluation as decided by DPC of respective department and academic development Committee.

6.8 **Seminar/Mini projects**: Seminar is a course requirement, wherein under the guidance of an Instructor, a student is expected to do in-depth study in a specialized area by carrying out a literature survey, understanding different aspects related to that area, preparing a status report based on the topic chosen. For a seminar course, a student is expected to learn investigation methodologies, study relevant research papers, correlate work of various authors/researchers critically, study the concepts, techniques and prevailing results, analyze those, prepare a seminar report on all these aspects. It shall
be mandatory to give a seminar presentation before a panel constituted for this purpose. The grading shall be done on the basis of the depth of the work done, understanding of the problem, technical quality of the report prepared and presentation given by the student.

Students are encouraged to work on Mini projects in small groups to get exposure to real life problem solving and hands on experience.

6.9 **Project**: Project is a course requirement, wherein under the guidance of an Instructor, a final year student is required to do some innovative/contributory/developmental work with application of knowledge earned while undergoing various theory and laboratory courses in his/her course of study. A student has to exhibit both analytical and practical skills through the project work.

A student has to carry out project under the guidance of a faculty from the same discipline unless specifically permitted by the Department Program Committees (DPCs) of the concerned departments in case of interdisciplinary projects or DPC of the parent department in case of industry sponsored projects.

The B. Tech. project shall be done in the final year and is divided into two stages. Normally the first stage shall be carried out in Semester-VII while the second stage shall be carried out in Semester-VIII. The quantum of work expected to be carried out by a student in each stage shall be in accordance with the division of credits given in the respective program structure.

**7. FACILITATION TO STUDENTS**

7.1 **Faculty Advisor**: On joining the institute, a student or a group of students shall be assigned to a faculty advisor who shall be mentor for a student. A student shall be expected to consult the faculty advisor on any matter relating to his/her academic
performance and the courses he/she may take in various semesters / summer term. A faculty advisor shall be the person to whom the parents/guardians should contact for performance related issues of their ward. The role of a faculty advisor is as outlined below:

- Guidance about the rules and regulations governing the courses of study for a particular degree.
- Paying special attention to weak students.
- Guidance and liaison with parents of students for their performances.

7.2 **Helping Weaker Students** : A student with backlog/s should continuously seek help from his/her faculty advisor, Head of the Department and the Dean Student Development. Additionally he/she must also be in constant touch with his/her parents/local guardians for keeping them informed about academic performance. The institute also shall communicate to the parents/guardians of such student at-least once during each semester regarding his/her performance in In-semester evaluation and Mid-semester examination and also about his/her attendance. It shall be expected that the parents/guardians too keep constant touch with the concerned faculty advisor or Head of the Department, and if necessary - the Dean Student Development.

**8. DISCIPLINE AND CONDUCT**

8.1 Every student shall be required to observe discipline and decorous behavior both inside and outside the campus and not to indulge in any activity, which shall tend to bring down the prestige of the institute.

8.2 Any act of indiscipline of a student reported to the Dean, Student Development, shall be discussed in a Disciplinary Action Committee of the institute. The Committee shall enquire into the charges and recommend suitable punishment if the charges are substantiated.
8.3 If a student while studying in the institute is found indulging in anti-national activities contrary to the provisions of acts and laws enforced by Government he/she shall be liable to be expelled from the institute without any notice.

8.4 If a student is involved in any kind of ragging, the student shall be liable for strict action as per Maharashtra anti-ragging act and its amendments from time to time.

8.5 If any statement/information supplied by the student in connection with his/her admission is found to be false/incorrect at any time, his/her admission shall be cancelled and he/she shall be expelled from the institute and fees paid shall be forfeited.

8.6 Student once admitted in the institute shall follow instructions issued from time to time.

8.7 If a student is found guilty of malpractice in examinations then he/she shall be punished as per the recommendations of the Student Grievances and Redressal Committee (SGRC). The maximum punishment may be expulsion from the institute.

8.8 Every admitted student shall be issued photo identification (ID) card which must be retained by the student while he/she is registered at RIT, Rajaramnagar. The students have valid ID card with him/her while in the institute. Any student who alters or intentionally mutilates an ID card or who uses the ID card of another student or allows his/her ID card to be used by another shall be subjected to disciplinary action.

8.9 The valid ID card must be presented for identification purpose as and when demanded by authorities. Any student refusing to provide an ID card shall be subjected to disciplinary action.

8.10 Students should switch off the Mobiles during the Instructional hours and in the Institute
Building, Library, Reading room etc. Strict action will be taken if students do not adhere to this.

8.11 During the conduct of any Tests and Examination students must not bring their mobiles. A student in possession of the mobile whether in use or switched off condition will face disciplinary action and will be debarred from appearing for the Test / Examination.

9. COURSE EVALUATION

9.1 Assessment of Theory Courses:

Evaluation of theory courses shall be on the bases of In semester evaluation (ISE), two unit Tests (UT1 and UT2) and End semester examination (ESE). The weightage for these components are shown in the table below:

<table>
<thead>
<tr>
<th>ISE</th>
<th>Unit Test I (UT I)</th>
<th>Unit Test II (UT II)</th>
<th>ESE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>15%</td>
<td>15%</td>
<td>50%</td>
</tr>
</tbody>
</table>

The student is required to secure minimum 40% marks in ISE, UT1 and UT2 combined to become eligible for ESE and 40% separately in ESE. The students are required to obtain 40% in Aggregate to pass the course for B Tech program.

9.1.1 In- Semester Evaluation (ISE):

In semester evaluation has two components as mentioned below:

1. Attendance and class participation (10%) The students for this component are evaluated based on regularity in attending class, participation in class room activities, discipline and behavior and initiative and punctuality in assigned work. The course teachers evaluate and submit the marks directly to COE. These marks will not be displayed to the students.
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Attendance</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Students having attendance &gt; 90% and active participation in classroom activities</td>
<td>10</td>
</tr>
<tr>
<td>II</td>
<td>Students having attendance between 86% to 90% and active participation in classroom activities</td>
<td>09</td>
</tr>
<tr>
<td>III</td>
<td>Students having attendance between 80% to 85% and active participation in classroom activities</td>
<td>07</td>
</tr>
<tr>
<td>IV</td>
<td>Students having attendance between 75% to 79% and active participation in classroom activities</td>
<td>05</td>
</tr>
<tr>
<td>V</td>
<td>Below 75% and no participation in classroom activities.</td>
<td>00</td>
</tr>
</tbody>
</table>

2. The Second Components of ISE is teacher designed assessment scheme which is pre announced by the course instructor. Teacher is required to use minimum two components. **The weightage is 10 %.**

9.1.2 UNIT TESTS

**Unit Test (UT1) 15 percent weightage:** UT 1 is conducted tentatively in the 6th week of the semester. The test will be for 25 marks for 1 hour duration. Question paper will be set with one question each on unit 1 and unit 2 of the course syllabus. The marks obtained will be converted to 15 with no rounding of marks to the next digit.

**Unit Test (UT2) 15 percent weightage:** UT2 will be conducted tentatively in the 11th week of the semester. The test will be for 25 marks for 1 hour duration. Question paper will be set with one question each on unit 3 and unit 4 of the course syllabus. The marks obtained will be converted to 15 with no rounding of marks. The UT1 and UT2 marks combined to be rounded to next integer as per the rules (> 0.5 to next integer value).
The schedule is mentioned in academic Calendar and test time table will be declared by CoE well in advance.

9.1.3 **End Semester examination (ESE)**

End Semester Examination (ESE) 50 % weightage. End Semester Examination is conducted after the end of instructions for the semester as specified in academic calendar the ESE for the course consists of two categories.

1. **Course with no MCQ (ESE 50 Marks)**: In such courses 2 questions, one each from unit 5 and unit 6 and one comprehensive question from unit 2 to unit 4 are set. Maximum marks are 50 and duration 2 hours. The student is required to secure 40% marks separately to pass the examination.

2. **Courses with MCQ**: The courses where there is an MCQ the weightage will be 50 %, 10% for multiple choice questions for ESE, and 3 questions in total are to be set one each from unit 5 and unit 6 and one from units 2, 3 and 4. The duration for the examination will be of 2 hours. The student is required to secure 40% marks separately to pass the examination including MCQ.

3. **MCQ Examination**: There will be MCQ examination of 10 % weightage for maximum of 3 courses in a semester should comprise 10 questions each i.e. Total 30 questions, 10 each from the selected 3 courses. The duration will be 45 minutes and GATE level questions will be included. The marks scored out of 10 in selected course will be added to the ESE marks. The BoS will decide which 3 courses will have MCQ. The courses which have a major focus in GATE examination should be included for MCQ and should be preannounced with notification.
MCQ will be only for regular semester examinations. For supplementary examination/reexamination the ESE is of 50 marks without MCQ component.

9.2. Assessment of Laboratory Courses:

The assessment of laboratory course for First year shall be continuous and based on turn-by-turn supervision of the student’s work and the quality of his/her work as prescribed through laboratory journals and his/her performance in viva-voce or any other mode of evaluation examinations uniformly distributed throughout the semester. There shall be no ESE for laboratory courses of First Year. The entire assessment of a student shall be based on ISE.

The ISE component of the laboratory course is a continuous evaluation turn by turn by the course faculty and the assessment should be shown to the students.

Student has to get minimum 50% marks individually in ISE and ESE to pass and earn credits for laboratory course.

The Examiner for the lab course ESE, other than the course faculty can be competent faculty from the same or other department of Rajarambapu Institute of Technology. However, the CoE can appoint an examiner outside RIT, if required. For B.Tech. final year laboratory courses, it is mandatory to appoint an external competent examiner from industries/ research organizations / academic institutions of repute.

For UG project ESE examination, External examiner outside RIT is mandatory.
9.2.1 The assessment of laboratory course from the 1st semester onwards shall be carried out in two parts.

• ISE shall be based on turn-by-turn supervision of the student’s work and the quality of his/her work as prescribed through laboratory journals and his/her performance in Practical-oral examinations uniformly distributed throughout the semester.

• ESE shall be based on performing an experiment followed by an oral examination.

• The relative weightage for ISE and ESE for assessment of laboratory courses shall be 50% and a minimum performance of 50% in both ISE and ESE separately shall be required to get the passing grade.

9.3 Assessment of Seminar, Mini-project, Project etc.:

Every student has to undertake seminar, mini-project, project of professional nature and interest at various levels of study. The topic of seminar or work related with mini-project/project may be related to theoretical analysis, an experimental investigation, a prototype design, new concept, analysis of data, fabrication and setup of new equipment etc. The student shall be evaluated for his/her seminar or mini-project/project through the quality of work carried out, the novelty in the concept, the report submitted and presentation(s) etc.

9.3.1 The Seminar/Project report must be submitted by the prescribed date usually two weeks before the end of academic session of the semester. It is desirable that the topics for seminar/project be assigned by the end of previous semester.
9.3.2 The seminar report and the presentation of seminar shall be evaluated by three departmental faculty members (decided by DPC).

9.3.3 The mini-project shall be evaluated jointly by supervisor and Examiner appointed by the DPC of the department.

The assessment of B. Tech project work shall be carried out in two phases as prescribed in the respective program structure.

9.4 **Course of action for students failed in ISE of Project/Seminar/Laboratory course:**

1. The student who has failed in ISE of **UG-Project** phase shall be given an extension of a maximum period of one month for his/her improvement and then he/she shall be evaluated and the marks should be submitted to COE.

2. After satisfactory performance in ISE of Project phase, the student shall be allowed to appear for the project ESE at the time of Re-Exam and the ESE marks should be submitted to COE.

3. The same provision (1 & 2 above) shall also be made applicable for UG- Seminar courses.

4. For UG-Laboratory course (excluding project and seminar), if a student fails or falls in XX category for ISE then he/she should Re-register for the course in the immediate semester, complete the ISE work and the ISE work and the ISE marks should be submitted to COE.

9.5 **Assessment during summer term:**
The evaluation of a student undergoing summer courses, if offered shall be done in exactly the same way as the assessment of theory or laboratory course as explained above. The only difference shall be that the pace of teaching and evaluation shall be twice that for even or odd semester course.

10. GRADING SYSTEM

10.1 Award of Grade (Regular Semester Examination)

10.1.1 For every course registered by a student in a semester, he/she shall be assigned a grade based on his/her combined performance in all components of evaluation scheme of a course as per the structure. The grade indicates an assessment of the student’s performance and shall be associated with equivalent number called a grade point. **Absolute grading system is followed.**

10.1.2 The academic performance of a student shall be graded on a ten point scale. The letter grades, the guidelines for conversion of marks to letter grades and their equivalent grade points are as given in Table 10.1.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Theory Marks Obtained %</th>
<th>Grade Point</th>
<th>Laboratory Courses Marks Obtained %</th>
<th>Grade Point</th>
<th>Description of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>&gt;=90</td>
<td>10</td>
<td>&gt;=90</td>
<td>10</td>
<td>Outstanding</td>
</tr>
<tr>
<td>AB</td>
<td>80-89</td>
<td>9</td>
<td>80-89</td>
<td>9</td>
<td>Excellent</td>
</tr>
<tr>
<td>BB</td>
<td>70-79</td>
<td>8</td>
<td>70-79</td>
<td>8</td>
<td>Very Good</td>
</tr>
<tr>
<td>BC</td>
<td>60-69</td>
<td>7</td>
<td>65-69</td>
<td>7</td>
<td>Good</td>
</tr>
<tr>
<td>CC</td>
<td>50-59</td>
<td>6</td>
<td>60-64</td>
<td>6</td>
<td>Above Average</td>
</tr>
<tr>
<td>CD</td>
<td>45-49</td>
<td>5</td>
<td>55-59</td>
<td>5</td>
<td>Average</td>
</tr>
<tr>
<td>DD</td>
<td>40-44</td>
<td>4</td>
<td>50-54</td>
<td>4</td>
<td>Below Average</td>
</tr>
</tbody>
</table>
### Table

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF</td>
<td>&lt;40</td>
</tr>
<tr>
<td>XX</td>
<td>—</td>
</tr>
<tr>
<td>II</td>
<td>—</td>
</tr>
<tr>
<td>PP</td>
<td>—</td>
</tr>
<tr>
<td>NP</td>
<td>—</td>
</tr>
</tbody>
</table>

10.1.3 The combined performance generally refers to performance in (as per the structures of the respective course) ISE, UT1, UT2 and ESE in theory courses and ISE and ESE for laboratory courses.

10.1.4 A student shall pass the course if he/she gets any grade in the range between “AA” to “DD”.

10.1.5 “FF” grade shall be awarded to a student in a course if he/she gets less than 40% marks in ESE separately and 40% marks jointly in the ISE, UT1, and UT2 & ESE for a theory course and 50% marks in ISE & ESE separately for a laboratory course. Student failed in theory course shall then be eligible to apply for supplementary examination conducted along with re-examination conducted after regular examination of even semester. The students have an option to register for summer term for the courses if offered. A student failed in laboratory course shall be eligible to apply only for 100% examination conducted with the laboratory examinations of the subsequent semester. In both cases, a student has to suffer one grade penalty. The laboratory examination will be conducted after semester II regular examination along with supplementary/reexamination for both laboratory courses for semester I and semester II.

10.1.6 Grade “XX” in a regular course shall be given to a student if he/she falls in any of the following categories.
1. A student does not maintain the minimum attendance requirement for in any of the theory/laboratory/seminar/min-project/project and summer internship/in plant training courses.

2. A student has not completed most of the ISE, UT1 and UT2 due to non-medical reasons (e.g. when a student has missed all or most of the components of internal evaluation and unit tests conducted by the instructor in that semester).

3. A student fails to obtain 40% marks in ISE, UT1 and UT2 combined together.

4. A student is guilty of any academic malpractice during semester (Such cases shall be dealt by Student Grievances and Redressal Committee).

5. A student is guilty of any academic malpractice during examination.

10.1.7 Following rules apply to the student who has obtained grade “XX” in a regular semester:

1. If a student has XX grades in more than three courses, his term will be detained and he is not allowed to appear for ESE in any of the subjects. The student is required to take the fresh admission to the same class by paying all fees in the next academic year.

2. Students having XX grades in 3 or less number of courses during odd semester can appear for 100% examination conducted at the end of the academic year along with supplementary examination of semester I or register for the courses during summer term, if offered.

3. Students having XX grades in 3 or less number of courses during even semester can appear for 100% examination conducted at the end of the semester II of
next academic year along with re examination of semester II (Even Semester) or register for the courses during summer term, if offered in the next academic year.

4. ISE, UT1 and UT2 marks of such students will become null and void and they have to appear for 100% examination.

5. The reexamination shall be of 100 marks and shall be based on entire syllabus with equal weightage to all the units as mentioned in syllabus of the course. The grading used for 100% examination shown in Table 10.2.

<table>
<thead>
<tr>
<th>Marks</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 to 39</td>
<td>FF</td>
</tr>
<tr>
<td>40 to 54</td>
<td>DD</td>
</tr>
<tr>
<td>55 to 69</td>
<td>CD</td>
</tr>
<tr>
<td>70 to 85</td>
<td>CC</td>
</tr>
<tr>
<td>&gt; 86</td>
<td>BC</td>
</tr>
</tbody>
</table>

6. In above two cases when a student gets “XX” grade in a course, then this shall be treated as “FF” for the purpose of calculation of Semester Performance Index (SPI) and First Year Performance Index (FYPI) or Cumulative Performance Index (CPI). Refer Sec. 11 for calculation of Performance Indices.

10.1.8 Grade “II” shall be declared in a theory/laboratory course if a student has satisfactory in-semester performance and UT1 and UT2 and has fulfilled the 75% attendance requirement, but has not appeared for ESE due to genuine reasons, such students shall be eligible for the make-up examination of ESE.
only on medical grounds/valid reasons and on production of authentic medical certificate or other supporting document/s (as required by the institute) to the Exam Cell within 10 days after the respective examination is over. The application form with requisite amount of fees must be submitted to the Exam Cell before the last date of filling such application forms for make-up examinations.

A student with “II” grade when appears for the make-up examination shall be eligible to obtain a regular performance grade (“AA” to “FF”) as per Table 10.1, depending on his/her overall performance in ISE, UT1 and UT2. If a student fails to appear for make-up examination too, a grade “XX” shall be awarded to him/her. Thus “II” is only a temporary grade and shall be replaced by a valid grade only after make-up examination.

10.1.9 There shall be a few audit courses as per the policies of the institute or as decided by DPC of respective program. The grade “PP” (Passed)/ “NP” (Not Passed) shall be awarded for such courses depending upon the performance of a student evaluated by the course instructor. No grade points shall be associated with these grades and performance in these courses shall be not taken into account in the calculation of the performance indices (SPI, CPI). However, the award of the degree shall be subject to obtaining a “PP” grade in all such courses.

10.2 Award of Grades for Supplementary/Re-examinations:

10.2.1 A student who has obtained grade “FF” in regular semesters odd or even (semester I or Semester II) shall be eligible to appear for supplementary/re-examination conducted after regular examination of semester II, before the commencement of the next academic year.
10.2.2 In such cases In-semester and UT1 and UT2 performance of a student shall not be wiped out.

10.2.3 A student shall apply for supplementary/re examination before the last date of such application and shall appear for supplementary/re-examination.

10.2.4 The ESE examination pattern will be same as regular examination and there will not be any MCQ as in regular semester.

10.2.5 A student who is eligible for supplementary/re-examination, but remains absent due to genuine reasons and taken prior permission shall be given grade “FF”.

10.2.6 A student shall be awarded a grade between “AB” to “DD”, or “FF” or “XX” as given in Table 10.3 depending upon the cumulative marks obtained by him/her in ISE, UT1 and UT2 and supplementary/Re-Examination of ESE. Here a student has to suffer one grade penalty by accepting one grade lower as compared with the regular grades.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Marks Obtained %</th>
<th>Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>&gt;=90</td>
<td>9</td>
</tr>
<tr>
<td>BB</td>
<td>80-89</td>
<td>8</td>
</tr>
<tr>
<td>BC</td>
<td>70-79</td>
<td>7</td>
</tr>
<tr>
<td>CC</td>
<td>60-69</td>
<td>6</td>
</tr>
<tr>
<td>CD</td>
<td>50-59</td>
<td>5</td>
</tr>
<tr>
<td>DD</td>
<td>40-49</td>
<td>4</td>
</tr>
<tr>
<td>FF</td>
<td>&lt;40</td>
<td>0</td>
</tr>
<tr>
<td>XX</td>
<td>—</td>
<td>0</td>
</tr>
</tbody>
</table>
10.2.7 **Award of Grade (Summer Term or 100% Examination):**

A student who has obtained “FF” grade in ESE of a regular semester and has not availed supplementary/re examination option or a student who has obtained “FF” grade in both ESE and supplementary/re examination shall be eligible to choose one of the two options below to clear his/her backlog:

- Registration for summer term (If offered)
- Re-registration for the next regular semester course whenever that course is offered.

A student detained in a regular semester due to either a) by obtaining “XX” grade or b) by involvement in academic malpractice or c) by breaking the institute code of conduct and discipline cannot apply for summer term for that academic year, but can appear for 100% examination to clear the backlog.

10.3 **Grades for Summer Term:**

10.3.1 A student registering for the summer course shall undergo all evaluations as per the structure of that course such as ISE, UT1, UT2 and ESE and shall be eligible to acquire any grade between “AB” to “DD” or “FF” or “XX” as per Table 10.3.

10.3.2 A student getting grade “FF” in summer course has to re-register and repeat the course whenever it is offered next or appear for 100% examination whenever it is held next. In both cases, a student has to suffer a grade penalty and accept the grades as per Table 10.2.

10.3.3 A grade “XX” shall be awarded to a student if he/she is found to be guilty of any disciplinary action during summer term, examination or assessment. Such cases shall be dealt by Student Grievances and Redressal Committee as and when required.
10.4 **Award of Grade (Re-Registration):**

Following rules apply for the course re-registered in any semester.

10.4.1 ISE and UT1 and UT2 performance of a student of a regular or summer term for a re-registered course in which he/she had obtained “FF” or “XX” grade during regular semester or summer term shall be treated as null and void.

10.4.2 A student shall undergo all evaluations consisting of ISE, UT1, UT2 and ESE applicable as per the structure of the respective course.

10.4.3 A student with “FF” grade when re-registers for that course in a regular semester or summer term has to suffer a grade penalty and shall be eligible to acquire grade as per Table 10.3.

10.4.4 A re-registered student eligible for ESE remains absent for ESE due to valid genuine reason as mentioned then he/she shall be treated in a similar way as “Grade II” cases in regular semester by giving a chance to appear for make-up examination held before the commencement of the next academic year with grade Table 10.3 being applicable to him/her.

10.4.5 **SUPPLEMENTARY AND RE-EXAMINATION**

Supplementary and Re-Examination will be conducted only in the second semester. There will not be any re-examination / make up examination at the end of first semester. The students will get two opportunities for semester I and Semester II in the academic year to pass the examination.
<table>
<thead>
<tr>
<th>Semester I</th>
<th>Regular examination of odd semester only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester II</td>
<td>1 Regular examinations of even semester</td>
</tr>
<tr>
<td>(Summer Examinations)</td>
<td>2 Supplementary examination of odd semester</td>
</tr>
<tr>
<td></td>
<td>3 Re-examination of even semester.</td>
</tr>
<tr>
<td></td>
<td>4 Summer Term examinations if summer term is offered.</td>
</tr>
</tbody>
</table>

There will be only **one grade penalty** for the first three attempts and ESE and ISE, UT 1 and UT 2 marks are to be carried forward for three attempts in case of FF grade (Fail Grade). If the student fails to pass the courses in first three attempts, from 4<sup>th</sup> and subsequent chances, the grade penalty will be as per the table of 100% examination (Table 10.2). In case of XX grade, the students will not be allowed to appear for the re-examination conducted in the immediate semester. It is 100% comprehensive examination. The paper of 100 marks covering all units for 3 hours duration.

### 10.4.6 Mechanism of Re-Registration

The mechanism to be followed for the process of Re-registration of Theory and Laboratory courses is as given below:

**I) Theory Courses:**

Following process shall apply for re-registration of theory courses:

- A student, who has obtained ‘FF’ Grade in more than three courses (odd or even semester) in an academic year, can re-register for the course/s immediately in the next academic year, whenever such course/s is offered.

- Such student/s shall submit the application form in the prescribed format (available in the office) along with the copy of mark sheet and requisite re-
registration fee to the office through Head of concerned Department within 15 days after declaration of examination results.

- The student failing to re-register for the course/s within the specified duration shall have to apply for re-registration with late fee for the maximum period of 10 days. Thereafter, the student will have to re-register by paying prescribed super late fee of (in addition to late fee) till the date of commencement of new semester. A student failing to re-register until the date of commencement of new semester (as per the Academic Calendar) will not be eligible for re-registration.

- After receiving the re-registration application and necessary fees from the student, the office shall communicate the information of such re-registered student/s to the Examination Center as well as the Head of concerned Department and ERP coordinator for further process. The concerned Head of Department will then display the list of such re-registered students on the department notice board and ensure that all the evaluation (ISE, UT1 & UT2) will be conducted along with regular student. After completion of the ISE, UT1 & UT2 by the student/s, the course instructor will submit the mark sheets to the Examination Center.

II) Laboratory Courses:

Following process shall apply for re-registration of laboratory courses:

- A student who has obtained “XX” grade in the Laboratory course/s of a semester (odd or even) shall have to re-register for that course/s immediately in the next semester. Such student shall submit the application form in the prescribed format (available in the office) along with the copy of mark sheet and prescribed re-registration fee per course to the office through Head of concerned Department within 15 days after declaration of examination results.
• The student failing to re-register for the course/s within the specified duration shall have to apply for re-registration with late fee for the maximum period of 10 days. Thereafter, the student will have to re-register by paying prescribed super late fee till the date of commencement of new semester. A student failing to re-register until the date of commencement of new semester will not be eligible for re-registration.

• After receiving the re-registration application and necessary fees from the student, the office shall communicate the information of such re-registered student/s to the Examination Center as well as the Head of concerned Department and ERP coordinator for further process.

• The concerned Head of Department will then display the list of such re-registered students on the department notice board and will prepare the schedule for ISE of Laboratory course as per the convenience of the faculty and student/s.

• Thus, ISE of Laboratory course of such re-registered student/s will be conducted as per the schedule and after satisfactory completion of the ISE component by the student/s, the course in charge will have to submit the marks obtained by students to the Examination Center.

11. CALCULATION OF PERFORMANCE INDICES

The performance indices viz. Semester Performance Index (SPI), First Year Performance Index (FYPI), Cumulative Performance Index (CPI) represent the performance of a student in a semester (SPI), cumulated for two semesters of first year (FYPI) and cumulated over all semesters from the third semester onwards till current semester (CPI) on a scale of 10.
11.1 Semester Performance Index (SPI):

11.1.1 The performance of a student in a semester shall be indicated by a number called SPI.

11.1.2 SPI shall be the weighted average of the grade points obtained in all the courses registered by the student during a semester.

11.1.3 If ‘gi’ shall be a grade with numerical equivalent as gi obtained by a student for the course with credits ‘Ci’ then, SPI for that semester is calculated using formula.

\[ SPI = \frac{\sum_{i} C_i g_i}{\sum_{i} C_i} \]

Where summation is for all the courses registered by a student in that semester, SPI shall be calculated and is rounded off to two decimal places.

11.1.4 SPI shall get affected because of the grades “XX” and “FF” obtained by the student in any of the courses.

11.1.5 For the students acquiring “II” grade (which is only a temporary grade) in any of the courses, SPI, CPI shall be calculated only after make-up examination.

11.1.6 SPI once calculated shall never be modified.

11.2 First Year Performance Index (FYPI):

11.2.1 For a student registered in autonomous RIT, Rajaramnagar right from the First semester, First-Year-Performance-Index (FYPI) shall be calculated as weighted average of the grade points obtained in all the courses registered by him/her in semesters I and II only.
Where, summation is for all the courses registered by a student in first two semesters. FYPI shall be calculated after calculating SPI for the second semester is calculated. FYPI shall be rounded off to two decimal places.

11.2.2 FYPI shall reflect all the courses undergone by a student in the first year including the courses in which he/she has failed. FYPI may get modified in the subsequent semesters whenever a student clears his/her first year backlog courses.

11.2.3 If a student has been awarded “II” grade in the regular semester course of the first year then, FYPI shall be calculated after the make-up examination on the basis of the grade obtained by that student in a make-up examination.

11.2.4 If a student has obtained grade “FF” or “XX” at any time in any of the courses registered by him, then zero grade points corresponding to these grades shall be taken into consideration for calculation of FYPI.

11.2.5 If a student has a backlog of first year, then his/her FYPI shall be recalculated only after he/she clears his/her backlog.

11.3 **Cumulative Performance Index (CPI):**

11.3.1 An up-to-date assessment of the overall performance of a student for the courses from the third semester onwards till completion of the program shall be obtained by calculating an index called Cumulative Performance Index (CPI).
11.3.2 CPI is the weighted average of the grade points obtained in all the courses registered by a student since the beginning of the third semester of the program.

\[
\text{CPI} = \frac{\sum_{i} C_i g_i}{\sum_{i} C_i}
\]

Where, summation is for all the courses registered by a student from third semester till that semester. CPI shall also be calculated at the end of every semester from the third semester onwards and shall be rounded off to two decimal places.

11.3.3 CPI shall reflect all courses undergone by a student including courses in which he/she has failed. Thus, similar to SPI, “FF” and “XX” grade shall affect the CPI of a student.

11.3.4 If a student is awarded with a pass-grade for a course in which he/she was awarded previously “FF” or “XX” grade then, CPI shall be calculated by replacing corresponding Ci and gi in both numerator and denominator of the above formula. Thus, a course shall be included only once in CPI calculation. The latest performance of a student in a course shall be considered for CPI.

12. PROCEDURE TO SHOW THEORY ESE ANSWER BOOKS

In order to introduce 100% transparency in evaluation system, UT1, UT2 and also ESE answer books are shown to students.

12.1 The Answer book (AB) showing activity for ESE is carried out after the approval for declaration of results in BoE meeting.

12.2 After the ESE theory assessment and marks entry in prescribed format, the course
teacher shall submit the ESE mark list and he/she shall collect the answer books from Exam Center for showing it to students.

12.3 The DEC in consultation with DPC Chairperson shall prepare a time table for showing the ABs to concerned students. The time table shall be displayed on the department notice board and the same shall be submitted to Exam Center.

12.4 The course teacher shall show the ABs to the students as per the schedule declared by the DEC/DPC Chairperson.

12.5 The course teacher shall review the ABs based on the queries from students. He/she shall keep record of attendance of students in this process.

12.6 The course instructor shall submit the list of “change in ESE marks”, student attendance sheet along with the ABs to Exam Center within stipulated time as decided by CoE.

13. ACADEMIC PROGRESS RULES (ATKT RULES)

A student shall be allowed to take admission for odd semester of next academic year, only if he/she has earned all the credits of previous year and maximum of three FF grades in the current year (semester I and Semester II together). Students who have FF grades in more than three courses in the current academic year will not be permitted to take admission for the odd semester of next academic year.

Maximum duration for getting B. Tech. degree for students admitted in the first semester of UG program shall be 12 semesters (six academic years) while for lateral entry students admitted in the third semester shall be 10 semesters (five academic years) from their date of admission. The maximum duration of the program includes the period of withdrawal, absence and different kinds of leaves permissible to a student but excludes the period of rustication of
a student from the institute. However, genuine cases on confirmation of valid reasons may be referred to Academic Council for extending this limit by additional one year.

It is mandatory for a student to earn all credits specified for semester I and semester II or eligible for ATKT as per the rules to seek admission to Second Year in three years from the date of his / her admission to avoid NFTE. If a student fails to become eligible for admission to Second Year engineering in three years from the date of his / her admission, then he / she shall be declared as “Not Fit for Technical Education (NFTE)” leading to discontinuation of his / her registration with the institute. Depending upon the academic progress of a student, Academic Council may take a decision regarding continuation or discontinuation of his / her registration with the institute.

14. SEMESTER GRADE REPORT

14.1 Semester grade report reflects the performance of a student in that semester (SPI) and also his/her cumulative performance for the first year (FYPI) and also the cumulative performance since the third semester of his/her study (CPI).

14.2 The semester grade card issued at the end of each semester/ summer term to each student shall contain the following.

- The credits for each course registered for that semester.
- Any audit course/s undertaken by a student in a Semester.
- The letter grade obtained in each course.
- The total number of credits earned by a student for the first year separately.
- The total number of credits earned by a student since the 3rd semester onwards.
- SPI, FYPI, CPI.
- A list of backlog courses, if any.
- Remarks regarding eligibility of registration for the next semester.
14.3 Semester grade card shall not indicate class or division or rank however a conversion from grade point index to percentage based on CPI shall be indicated on the final grade card of the program.

15. AWARD OF DEGREE

Following rules prevail for the award of degree.

15.1 A student has registered and passed all the prescribed courses under the general institutional and departmental requirements.

15.2 A student has obtained CPI ≥ 4.75.

15.3 A student has paid all the institute dues and satisfied all the requirements prescribed.

15.4 A student has no case of indiscipline pending against him/her.

15.5 Institute authorities shall recommend the award of B.Tech. degree to a student who is declared to be eligible and qualified for above norms. However, the final degree shall be conferred by Shivaji University, Kolhapur.

15.6 A student who has joined an autonomous program in fifth semester (third year), his CPI is calculated based on his performance from fifth semester to eighth semester.

15.7 A student who has joined an autonomous program in seventh semester (fourth year), his CPI is calculated based on his performance from seventh semester to eighth semester.

15.8 Grace Marks: A student will be given maximum of two grace marks per course to obtain the passing grades in maximum of two theory courses provided he/she has passed in all the other courses for the semester. If a student has failed in more than two courses no grace marks will be applicable in any course.
15.9 A grace of 1% of maximum CPI of 10 (maximum 0.1 CPI) is given to the student only at 8th semester CPI if such a provision will help to secure the higher class i.e. to secure minimum pass class (CPI 4.75, second class, first class /First class with Distinction). It is not given for any other reasons.

Table 1: Grade Point vs. Equivalent Percentages (as per AICTE)
(Applicable for B. Tech. students admitted from 2014-15 onwards)

<table>
<thead>
<tr>
<th>Grade Point</th>
<th>Equivalent Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.25</td>
<td>55</td>
</tr>
<tr>
<td>6.75</td>
<td>60</td>
</tr>
<tr>
<td>7.25</td>
<td>65</td>
</tr>
<tr>
<td>7.75</td>
<td>70</td>
</tr>
<tr>
<td>8.25</td>
<td>75</td>
</tr>
</tbody>
</table>

Table 2: Proposed CPI vs. Class for B. Tech Program

<table>
<thead>
<tr>
<th>Corresponding Class</th>
<th>Pass Class</th>
<th>Second Class</th>
<th>First Class</th>
<th>First Class with Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI</td>
<td>CPI ≥ 4.75 &amp;&lt; 5.75</td>
<td>CPI ≥ 5.75 &amp;&lt; 6.75</td>
<td>CPI ≥ 6.75 &amp;&lt; 7.75</td>
<td>CPI ≥ 7.75</td>
</tr>
</tbody>
</table>

The formula for Converting CPI into Percentage marks for CPI ≥ 4.75 can be obtained using equation: Percentage marks = (CPI - 0.75) * 10

16. GRADE /CPI IMPROVEMENT POLICY FOR AWARD OF DEGREE

Students who have secured DD grade in course in an odd semester or even semester in an academic year can appear for supplementary/re-examination for the same academic year for improvement of grade.
If a student applies for appearing for such supplementary/re-examination for a course, ISE and UT1 and UT2 marks of the course shall be null and void. Also grades obtained in the course during regular semester odd or even shall be null and void.

An opportunity shall be given to a student who has earned all the credits required by the respective program with CPI greater than or equal to 4.00 but less than 4.75 (Refer Section 14.2), to improve his/her grade by allowing him/her to appear for 100% examinations of maximum two theory courses of seventh and eighth semester. Such examinations shall be scheduled along with supplementary/ re-examinations of 8th semester. However, CPI shall be limited to 4.75 even though the performance of a student as calculated through modified CPI becomes greater than 4.75.

17. GRADE IMPROVEMENT POLICY

Students **who have secured DD grade in course** in an odd semester or even semester in an academic year (i.e. applicable to students of all F.Y., S.Y.,T.Y.& Final Year B.Tech. class) can appear for such Grade Improvement examination for the same academic year for improvement of grade. If a student applies for appearing for such make-up examination for a course, ISE and UT1 and UT2 marks of the course shall be null and void. Also grades obtained in the course during regular semester odd or even shall be null and void. The result of such Grade Improvement examination will be treated as final provided there is an improvement in grade or else his/her grade before improvement will be considered for CPI/SPI calculation.

The student shall have to apply for such re-examination / supplementary (grade improvement) examination within 10 days after the declaration of regular ESE result and have to pay prescribed fees as examination fee along with undertaking in prescribed format.
18. CPI IMPROVEMENT AFTER COMPLETION OF PREREQUISITE CREDITS FOR THE AWARD OF DEGREE

Students who secure CPI between 4.75 and 6.75 after completing the pre-requisite credits for the award of degree, and wish to improve their CPI are permitted for CPI improvement. Such students be permitted to withdraw their grade in a given course with poor grade and permitted to reappear for the examinations for improving the grade and in turn CPI.

a) Student can appear for grade improvement examination within one year from the date of passing his/her UG Examination. He should not have taken (i) Leaving Certificate from the Institute and ii) Degree from Shivaji University through convocation. He/she will submit a written application to dean academics seeking his/her permission to register for class improvement within one month from the date of declaration of result or one week before the date of convocation of University of Pune whichever is earlier. This application will be forwarded to dean academics through the Head of the Department from where he/she has graduated. No student will be admitted once the course registration process of that semester ends.

b) For grade improvement student will have to take maximum 3 courses in which he/she has secured DD or CD grades from the same semester in one stretch.

c) Student can choose maximum three theory courses from a particular semester offered for T.Y and B. Tech (either odd or even) in which he/she has secured DD or CD grade. Student will have to register for these courses in a particular semester in which those courses are offered.

d) At the time of registration student will surrender all the original mark lists given to him by the institute He will have to give an affidavit on Rs.100/- judicial stamp paper that
he/she will not do any use of surrendered mark lists till he/she gets official result of
the subjects for which he/she wishes to appear for grade improvement. No change of
courses or drop of courses will be allowed after registration.

e) Student wishing to improve his/her grade will have to pay appropriate fees as laid down
by the institute time to time.

f) Student wishing to appear for grade improvement is exempted from attending regular
classes as he/she has already undergone the course instructions but he/she will have to
appear for all the evaluation tests conducted for the particular courses. No re-exam or
retest will be allowed for the class improvement, in case such students miss any of the
tests or examinations. Absentee for End Semester Examination will automatically lead
to award of FF grade in that course.

g) The grading process as used for the regular students appearing for that course will be
applicable and no concession of any sort will be granted on account of absentee for any
of the examinations.

h) Student wishing to use the facility of grade improvement will have to pass in all the
three subjects at a time for which he/she has registered for. He/she will not be entitled
for the summer term or re-examination in such cases.

i) Only one attempt will be permissible for any candidate wishing to use the facility of
grade improvement. If the student fails to secure higher grades resulting in reduction
in overall CPI then the original result of the student before registering for grade
improvement will be retained.

j) Student who improves his/her CPI will be issued fresh mark lists by the institute. These
mark lists will have symbol against the course for which he/she has appeared for grade
improvement and will state “Grade Improvement”. The date on the new mark lists will be that as issued for other students appearing in those courses. The name of the student will be communicated to Shivaji University and he/she will have to apply for degree certificate from Shivaji University thereafter.

CONCLUSIONS:

The academic policies regarding conduct of UG programs in autonomous Rajarambapu Institute of Technology, Rajaramnagar are published in this document. The Academic Council shall reserve all the right to modify these policies as and when required from the point of view of achieving academic excellence. In special and abnormal cases (i.e. the cases not covered through above rules) the decision of Director (Chairman, Academic Council) shall be final and shall be binding on all concerned. For the latest updated version, stakeholders are requested to visit www.ritindia.edu and to refer the academic section therein.

(As per the resolutions of 7th Academic Council meeting held on 18th June, 2016 and implemented from semester I of academic year 2016)

DEAN ACADEMICS

DIRECTOR
RIT, Rajaramnagar
Curriculum Structure and Evaluation Scheme for **Academic Year 2016-17**

**F. Y. B. Tech. Semester : I**

**Group A: Mechanical, Civil and Automobile**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subjects</th>
<th>Teaching Scheme</th>
<th>Evaluation Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L T P Credits</td>
<td>Scheme</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Max. Min. for Passing</td>
</tr>
<tr>
<td>SH 1012</td>
<td>Engineering Physics</td>
<td>3 - - 3</td>
<td>ISE 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT1 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT2 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE 50</td>
</tr>
<tr>
<td>SH 1052</td>
<td>Engineering Mathematics I</td>
<td>3 1 - 4</td>
<td>ISE 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT1 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT2 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE 50</td>
</tr>
<tr>
<td>SH 1132</td>
<td>Engineering Graphics</td>
<td>3 - - 3</td>
<td>ISE 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT1 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT2 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE 50</td>
</tr>
<tr>
<td>SH 123</td>
<td>Fundamentals of Civil Engineering</td>
<td>3 - - 3</td>
<td>ISE 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT1 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT2 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE 50</td>
</tr>
<tr>
<td>SH 125</td>
<td>Mechanical Engineering Science</td>
<td>3 - - 3</td>
<td>ISE 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT1 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UT2 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE 50</td>
</tr>
<tr>
<td>SH 1512</td>
<td>Engineering Physics Lab</td>
<td>- - 2 1</td>
<td>ISE ---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE ---</td>
</tr>
<tr>
<td>SH 1552</td>
<td>Engineering Graphics Lab</td>
<td>- - 4 2</td>
<td>ISE ---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE ---</td>
</tr>
<tr>
<td>SH 171</td>
<td>Civil Engineering Lab</td>
<td>- - 2 1</td>
<td>ISE ---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE ---</td>
</tr>
<tr>
<td>SH 173</td>
<td>Mechanical Engineering Lab</td>
<td>- - 2 1</td>
<td>ISE ---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE ---</td>
</tr>
<tr>
<td>SH 175 / SH 181</td>
<td>Business Communication I Lab/ Advanced Communication Lab</td>
<td>- - 2 1</td>
<td>ISE ---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE ---</td>
</tr>
<tr>
<td>SH 1612</td>
<td>W/S Practice-I Lab</td>
<td>- - 2 1</td>
<td>ISE ---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESE ---</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td>15 1 14</td>
<td>23</td>
</tr>
</tbody>
</table>

**Note:** Tutorials and practical shall be conducted in batches with batch strength not exceeding 25 students.

ISE : In Semester Evaluation  UT : Unit Test  ESE : End Semester Examination

**Advanced Communication Lab** - Students will be eligible for Advanced Communication Lab and Foreign Language Lab on the basis of a comprehensive test conducted at the beginning of Sem I; otherwise he/she has to select Business Communication I for Sem I and Business Communication II for Sem II.
Curriculum Structure and Evaluation Scheme for **Academic Year 2016-17**  
F. Y. B. Tech. Semester: II  

**Group A: Mechanical, Civil and Automobile**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subjects</th>
<th>Teaching Scheme</th>
<th>Evaluation Scheme</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>SH 1032</td>
<td>Engineering Chemistry</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SH 1022</td>
<td>Engineering Mathematics II</td>
<td>3</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>SH 1112</td>
<td>Engineering Mechanics</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SH 127</td>
<td>Computer Programming</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SH 129</td>
<td>Electrical Engineering</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SH 1532</td>
<td>Engineering Chemistry Lab</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>SH 1631</td>
<td>Engineering Mechanics Lab</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>SH 177</td>
<td>Computer Programming Lab</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>SH 179</td>
<td>Electrical Engineering Lab</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>SH 156/SH 158/SH 160</td>
<td>Business Communication II Lab/ Japanese Language Level I/ German Language Level I</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SH 1522</td>
<td>W/S Practice-II Lab</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>SH 1542</td>
<td>Mini Project</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total:** 15 1 14 23  
**Total Contact Hours:** 30

**Note:** Tutorials and practical shall be conducted in batches with batch strength not exceeding 25 students.  
**ISE:** In Semester Evaluation  
**UT:** Unit test  
**ESE:** End Semester Examination  
**Foreign Language Lab** - Students have to choose one course among the following courses:  
SH 158 - Japanese Language Level I  
SH 160 - German Language Level I
Curriculum Structure and Evaluation Scheme for *Academic Year 2016-17*

**F. Y. B. Tech. Semester: I**

**Group B: Electrical, Electronics & Telecommunication, Computer Science & Information Technology**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subjects</th>
<th>Teaching Scheme</th>
<th>Evaluation Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 1032</td>
<td>Engineering Chemistry</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 1052</td>
<td>Engineering Mathematics I</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 1112</td>
<td>Engineering Mechanics</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 127</td>
<td>Computer Programming</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 129</td>
<td>Electrical Engineering</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 1532</td>
<td>Engineering Chemistry Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 1631</td>
<td>Engineering Mechanics Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 177</td>
<td>Computer Programming Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 179</td>
<td>Electrical Engineering Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 175/ SH 181</td>
<td>Business Communication I Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Advanced Communication Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH 1612</td>
<td>W/S Practice-I Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total:** 15 1 12 22

**Total Contact Hours:** 28

**Note:** Tutorials and practical shall be conducted in batches with batch strength not exceeding 25 students.

**ISE:** In Semester Evaluation  **UT:** Unit Test  **ESE:** End Semester Examination

**Advanced Communication Lab:** Students will be eligible for Advanced Communication Lab and Foreign language lab on the basis of a comprehensive test conducted at the beginning of Sem I otherwise he/she has to select Business Communication I for Sem I and Business Communication II for Sem II.
## Curriculum Structure and Evaluation Scheme for **Academic Year 2016-17**

**F. Y. B. Tech. Semester: II**

**Group B:** Electrical, Electronics & Telecommunication, Computer Science & Information Technology

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subjects</th>
<th>Teaching Scheme L</th>
<th>T</th>
<th>P</th>
<th>Credit</th>
<th>Scheme</th>
<th>Evaluation Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Theory (Marks %)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Max.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Max.</td>
</tr>
<tr>
<td>SH 1012</td>
<td>Engineering Physics</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>ISE</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT1</td>
<td>15</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UT2</td>
<td>15</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESE</td>
<td>50</td>
<td></td>
<td></td>
<td>40%</td>
<td>---</td>
</tr>
<tr>
<td>SH 1022</td>
<td>Engineering Mathematics II</td>
<td>3 1</td>
<td></td>
<td>4</td>
<td>4</td>
<td>ISE</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 1132</td>
<td>Engineering Graphics</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>ISE</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 123</td>
<td>Fundamentals of Civil Engineering</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>ISE</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 125</td>
<td>Mechanical Engineering Science</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>ISE</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UT2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 1512</td>
<td>Engineering Physics Lab</td>
<td>-</td>
<td></td>
<td>2</td>
<td>1</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 1552</td>
<td>Engineering Graphics Lab</td>
<td>-</td>
<td></td>
<td>4</td>
<td>2</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 171</td>
<td>Civil Engineering Lab</td>
<td>-</td>
<td></td>
<td>2</td>
<td>1</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 173</td>
<td>Mechanical Engineering Lab</td>
<td>-</td>
<td></td>
<td>2</td>
<td>1</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 156 /</td>
<td>Business Communication II Lab/</td>
<td>-</td>
<td></td>
<td>2</td>
<td>1</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td>SH 158 /</td>
<td>Japanese Language Level I/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 160</td>
<td>German Language Level I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>SH 1522</td>
<td>W/S Practice-II Lab</td>
<td>-</td>
<td></td>
<td>2</td>
<td>1</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>SH 1542</td>
<td>Mini Project</td>
<td>-</td>
<td></td>
<td>2</td>
<td>1</td>
<td>ISE</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ESE</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Total Contact Hours:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

**Note:** Tutorials and practical shall be conducted in batches with batch strength not exceeding 25 students.

**ISE:** In Semester Evaluation  **UT:** Unit Test  **ESE:** End Semester Examination

**Foreign Language Lab:** Students have to choose one course among the following courses:

- SH 158- Japanese Language Level I
- SH 160 - German Language Level I
## Summary of Courses

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Course Title</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Engineering Physics (Theory)</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>Engineering Mathematics I (Theory)</td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>Engineering Graphics (Theory)</td>
<td>58</td>
</tr>
<tr>
<td>4</td>
<td>Fundamentals of Civil Engineering (Theory)</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Mechanical Engineering Science(Theory)</td>
<td>62</td>
</tr>
<tr>
<td>6</td>
<td>Engineering Physics Lab</td>
<td>64</td>
</tr>
<tr>
<td>7</td>
<td>Engineering Graphics Lab</td>
<td>65</td>
</tr>
<tr>
<td>8</td>
<td>Civil Engineering Lab</td>
<td>66</td>
</tr>
<tr>
<td>9</td>
<td>Mechanical Engineering Lab</td>
<td>67</td>
</tr>
<tr>
<td>10</td>
<td>Business Communication I Lab</td>
<td>68</td>
</tr>
<tr>
<td>11</td>
<td>Advanced Communication Lab</td>
<td>70</td>
</tr>
<tr>
<td>12</td>
<td>Workshop practice-I Lab</td>
<td>72</td>
</tr>
<tr>
<td>13</td>
<td>Engineering Chemistry (Theory)</td>
<td>73</td>
</tr>
<tr>
<td>14</td>
<td>Engineering Mathematics II (Theory)</td>
<td>75</td>
</tr>
<tr>
<td>15</td>
<td>Engineering Mechanics(Theory)</td>
<td>77</td>
</tr>
<tr>
<td>16</td>
<td>Computer Programming (Theory)</td>
<td>79</td>
</tr>
<tr>
<td>17</td>
<td>Electrical Engineering (Theory)</td>
<td>80</td>
</tr>
<tr>
<td>18</td>
<td>Engineering Chemistry Lab</td>
<td>82</td>
</tr>
<tr>
<td>19</td>
<td>Engineering Mechanics Lab</td>
<td>83</td>
</tr>
<tr>
<td>20</td>
<td>Computer Programming Lab</td>
<td>84</td>
</tr>
<tr>
<td>21</td>
<td>Electrical Engineering Lab</td>
<td>85</td>
</tr>
<tr>
<td>22</td>
<td>Business Communication II Lab</td>
<td>87</td>
</tr>
<tr>
<td>23</td>
<td>Japanese Language Level I</td>
<td>89</td>
</tr>
<tr>
<td>24</td>
<td>German Language Level I</td>
<td>90</td>
</tr>
<tr>
<td>25</td>
<td>Workshop practice-II Lab</td>
<td>91</td>
</tr>
</tbody>
</table>
Course Code: SH 1012  
Course Title: Engineering Physics (Theory)

Teaching Scheme: L: 03 hrs  T: 00 hrs  P: 00 hrs  Credits: 03

Evaluation Scheme:
ISE: 20%  UT 1: 15%  UT 2: 15%  ESE: 50%

Course Outcomes: After successful completion of the course, student will be able to

1. Apply the principles of interference, diffraction and polarization in various optical devices such as interferometer, spectrometer, and polarimeter etc.
2. Apply the knowledge of architectural acoustics for planning of acoustically good hall.
3. Explain the production methods of ultrasonic waves and its application in engineering field.
4. Apply fundamentals of semiconductor physics that is used in semiconductor devices.
5. Apply the concepts of light in optoelectronic devices such as lasers, optical fibers, photodiode, LCD, Solar Cell etc. and its various applications.
6. Apply the principles of quantum mechanics to solve problems based on 1D Schrodinger wave equation.
7. Select appropriate magnetic materials depending on its properties for various applications.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Interference, Diffraction &amp; Polarization</strong></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Interference:</strong> Interference at parallel thin film, interference at wedge shaped film, Newton’s rings.&lt;br&gt;<strong>Diffraction:</strong> Types, difference, resolving power, Rayleigh’s criterion of resolution, diffraction grating.&lt;br&gt;<strong>Polarization:</strong> Double refraction, Huygens’ theory of double refraction, Laurent’s half shade polarimeter</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td><strong>Acoustics &amp; Ultrasound</strong></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Acoustics:</strong> Introduction, Basic requirements for acoustically good hall, reverberation, time of reverberation, Sabine’s formula (No derivation), absorption coefficient, factors affecting architectural acoustics and their remedies, numerical.&lt;br&gt;<strong>Ultrasonic:</strong> Introduction, production of ultrasonic waves by Piezoelectric and Magnetostriiction method (Using transistor circuit only), properties of ultrasonic waves, determination of wavelength and velocity of ultrasonic waves, detection of ultrasonic waves, application of ultrasonic waves, numericals.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Semiconductor Physics</strong></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Band structure of solids, classification of solids into metals, semiconductors and insulators on the basis of band theory, types of semiconductors, concept of Fermi energy, Hall Effect and its application.</td>
<td></td>
</tr>
</tbody>
</table>
### 4. Laser, Fibre optics & Optoelectronic devices

**Laser:** Introduction, Absorption, spontaneous emission, stimulated emission, population inversion, pumping, characteristics of laser, He-Ne laser.

**Fiber Optics:** Principle, propagation of light through cladded fibre, acceptance angle, acceptance cone, fractional refractive index change, Numerical aperture, numericals.

**Optoelectronic Devices:** Photodiode, LCD, Solar cell.

### 5. Quantum Physics

Dual nature of light, Matter waves and Debroglie’s hypothesis, Davisson and Germer experiment, Heisenberg’s uncertainty principle and its application (Non existence of electron in nucleus, time independent and dependent Schrödinger wave equation, wave function and its properties, Particle in a box (One dimension), Quantum confinement effect.

### 6. Magnetic Materials

Magnetic properties of materials- Review of basic formulae, Magnetic susceptibility, Classification of dia, para and ferromagnetic materials, Langevin’s Theory of dia and para magnetism (only classical treatment), Ferromagnetic domains, Hysteresis in ferromagnetic materials, Soft and Hard magnetic materials.

**Text books :**


**Reference books :**

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Curve Tracing &amp; Rectification</strong>: Review of one variable calculus: Continuity, Differentiability, Mean value theorem, Taylor’s polynomial. Tracing of curve in Cartesian form; Tracing of curve in polar form, rectification of plane curves (Cartesian &amp; polar form).</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Partial Differentiation &amp; Applications</strong>: Definition, functions of two and three variables, Differentiations of composite functions Euler’s theorem on homogeneous function, Jacobian.</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Vector Differentiation</strong>: Differentiation of vector, Gradient of Scalar point function, directional derivative, Divergence of vector point function, Curl of vector point function, irrotational &amp; solenoidal vector fields.</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Multiple Integrals</strong>: Introduction to double integrals, Evaluation of double integrals (in Cartesian &amp; polar), Evaluation of double integrals over the given region (in Cartesian &amp; polar), change of order of integration, Evaluation of triple integrals with given limits.</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Applications of Multiple Integrals</strong>: Area under the curves using double integrals, mass of lamina, moment of inertia of a plane lamina.</td>
<td>6</td>
</tr>
<tr>
<td>6.</td>
<td><strong>Complex numbers</strong>: Polar form of a complex number, Argand’s diagram, de Moivre’s theorem, roots of a complex number, Hyperbolic functions, circular functions of a complex variable and their relation.</td>
<td>6</td>
</tr>
</tbody>
</table>
Text Books :

Reference Books :
**Course Code:** SH 1132  
**Course Title:** Engineering Graphics (Theory)

**Teaching Scheme:** L : 03hrs T : 00 hrs P : 00 hrs Credits : 03

**Evaluation Scheme:**  
ISE : 20%  UT 1 : 15%  UT 2 : 15%  ESE : 50%

**Course Outcomes:** After successful completion of the course, student will be able to

1. Develop the various types of plane curves.
2. Visualize and develop the orthographic views of an object.
3. Imagine and develop the projection of regular solids and sectioned solids like Cone, Pyramid, Prism and Cylinder.
4. Develop the surfaces of regular solids and recognize the practical applications.
5. Develop the projection of point, line and plane by using method of first angle projection.
6. Visualise and develop the isometric view from orthographic views of an object.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Plane curves</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conic Sections -Ellipse, Parabola and Hyperbola, Involutes of circle and regular polygons, cycloids.</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Orthographic Projection</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basic principles of orthographic projection (First and Third angle method), projection of point and line .Orthographic projection of objects by first angle projection method. Missing views, procedure for preparing scaled drawing, sectional views and types of cutting planes and their presentation, Hatching of sections.</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Projection of Solids</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Projection of prism, pyramid, cone, cylinder and cylinder by rotation method.</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Section of solids and Development of Surfaces</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Projections of regular solids cut by section plane and development of lateral surfaces for simple positions only. True shape of section.</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Projection of Point, Lines and Planes</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Projection of oblique line by rotation or auxiliary plane method. Projection of parallel, perpendicular, intersecting and skew lines. Traces of Lines True shape and angle between planes.</td>
<td>6</td>
</tr>
<tr>
<td>6.</td>
<td><strong>Isometric Projection</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Isometric axes, line and planes, isometric projection and isometric view. Drawing isometric view of solids and objects.</td>
<td>6</td>
</tr>
</tbody>
</table>
Text Books:

Reference Book:
**Course Code:** SH 123  
**Course Title:** Fundamentals of Civil Engineering (Theory)  
**Teaching Scheme:** L : 03hrs  
**T : 00hrs**  
**P : 00 hrs**  
**Credits : 03**  
**Evaluation Scheme:**  
ISE : 20%  
UT 1 : 15%  
UT 2 : 15%  
ESE : 50%  

**Course Outcomes:** After successful completion of the course, student will be able to  
1. Apply the knowledge of civil engineering fundamental in day to day life.  
2. Use building principle, bye-laws and methods of building construction.  
3. Develop safety plan for building construction site.  
4. Prepare quantity estimate for building.  
5. Choose specific procedure for property transaction.  
6. Compute horizontal and vertical measurement.  

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
</table>
| 1.       | **Introduction to Civil Engineering**  
Introduction of all branches and Sub branches of civil engineering and their application in allied fields, Civil engineering projects.  
Smart cities : Infrastructural requirements of smart cities, Green building concepts and rating. | 6 |
| 2.       | **Building Planning Principles**  
Building Planning Principles, Rules and regulation – municipal corporation, build Bye-Laws- (building line and control line, open space requirements, built up and super built up area, F.S.I., and height of building). Building plan sanction procedure and fees. | 6 |
| 3.       | **Building Construction, Estimation and Costing**  
Introduction, types of building, stages of building construction, Various agencies involved in building construction and their role and responsibility, Introduction to Quantity estimation and rate analysis (Minimum two components).  
**Valuation**  
Introduction, Principle, Cost, Prize and Value. Types of value, Valuation of property (Depreciation method ) | 6 |
| 4.       | **Property Transactions**  
Land documents, property purchase and sale procedure. Property selection criteria and precautions (While purchasing property), Property taxes. Introduction to building finance | 4 |
### 5. **Horizontal Measurement**
Principles of surveying, classification of surveys, linear and angular measurements, bearing systems by total station, Calculation of included angles and errors. Measurement of area by digital planimeter, Introduction of GIS and GPS.

### 6. **Vertical Measurement**
Terms used in levelling, introduction to level measuring instruments, methods calculation of RLs, types of levelling, contours, characteristics of contours, use of contour maps

---

**Text Books:**

1. “Objective Civil Engineering”, R PH editorial board, Ramesh publishing house, Delhi, ISBN 10: 9350125374

**Reference Books:**

8. B. S. Patil, Civil Engineering Contracts and Estimates, Universities Press Private Ltd. 3-5-819 Hyderguda, Hyderabad, 500029 (A.P), India.
**Course Code:** SH 125  
**Course Title:** Mechanical Engineering Science (Theory)

**Teaching Scheme:**  
L : 03 hrs  
T : 00 hrs  
P : 00 hrs  
Credits : 03

**Evaluation Scheme:**  
ISE : 20%  
UT 1 : 15%  
UT 2 : 15%  
ESE : 50%

**Course Outcomes:** After successful completion of the course, Student will be able to

1. Select an appropriate power plant for specific application.
2. Apply ideal cycle analysis to heat engines to estimate various performance parameters.
3. Illustrate various energy conversion devices on the basis of their performance parameters.
4. Choose the suitable manufacturing method for making the product.
5. Identify and select power transmission devices for a given application.
6. Select proper machine elements or mechanism for a given application.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
</table>
| 1.       | **Power Plants**  
Current Energy scenario of India and Maharashtra, Hydroelectric-power, Thermal, Nuclear power plants. Solar, Wind, Solar-wind Hybrid power plants. (Description with block Diagrams). | 5    |
| 2.       | **Thermodynamics**  
Heat, work, Flow and non-flow process, Steady flow energy equation (SFEE) (Numerical Treatment), Carnot, Rankine, Otto, Diesel, and Dual Cycle. Comparison of Otto, Diesel and Dual cycles, calculation of air standard efficiencies | 7    |
| 3.       | **Energy Conversion Devices**  
Study of Pumps, Compressor, Hydraulic Turbines: Types, Construction, working and applications.  
Classification of heat engines. I.C. Engine- two stroke, four stroke, S.I., C.I. engines. Refrigerator and Window Air conditioner, | 7    |
| 4.       | **Design Considerations and Manufacturing Process**  
Design considerations- General design procedure, steps in design, concept of factor of safety  
Manufacturing Process-  
Introduction to Manufacturing Processes & their Applications-casting, sheet metal forming, and metal joining processes. | 5    |
| 5.       | **Mechanical Power Transmission**  
Types of belts, rope drives, calculation of length & power transmitted Belt tension ratio, sleep & creep of belt, chain drive, Types of gears and gear Trains. | 6    |
| 6.       | **Machine Elements and mechanisms**  
Shafts, Axles, Bearings, friction clutch (cone and single plate), brakes (types and applications only) Applications of these devices. Mechanisms:(Descriptive treatment only), Simple mechanisms, Slider crank mechanism, Four bar chain mechanism | 6    |
Text Books :
2. Sadhu Singh, Elements of Mechanical Engineering, S.Chand (G/L) & Company Ltd (1 December 2010)

Reference Books :
1. Dr. S. P. Sukathame, Solar Energy, Tata Mc-Graw Hill Publication
2. G. D. Rai, Non Conventional Sources of Energy, Khanna Publication
3. A. Achyutan, Engineering Thermodynamics, Prentice Hall of India.
6. Arora and Domkunwar, Power Plant Engineering, DhanpatRai and Sons.
7. S. Rao and Dr. B. B. Parulekar - Energy Technology, Khanna Publication
**Course Code :** SH 1512  
**Course Title :** Engineering Physics Lab

Teaching Scheme : L : 00   T : 00   P : 02 hrs   Credits : 01

Evaluation Scheme: ISE : 50%   ESE : 50 %

<table>
<thead>
<tr>
<th>Course Outcomes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Analyze the optical phenomena such as diffraction and interference to calculate wavelength of light.</td>
</tr>
<tr>
<td>3.</td>
<td>Estimate the hysteresis loss in given magnetic material using B-H curve.</td>
</tr>
<tr>
<td>4.</td>
<td>Deduce the parameters such as Numerical aperture of optical fiber and resolving power of telescope.</td>
</tr>
<tr>
<td>5.</td>
<td>Determine velocity of ultrasonic waves in liquid.</td>
</tr>
</tbody>
</table>

**Instruction :**

1. Minimum 10 experiments should be conducted.
2. Every student must perform experiment in individual not in group.

**List of Practicals :**

1. To determine band gap energy of semiconductor using Four Probe Setup.
2. To determine wavelength of laser using diffraction grating
3. To determine numerical aperture of Optical fiber using LED.
4. To determine wavelength of yellow, green, & violet colours using plane diffraction grating
5. To determination resolving power of telescope using auxiliary slit.
6. To find hall voltage of a given semiconductor.
7. To determine velocity of ultrasonic waves in given liquid
8. To plot the hysteresis curve for a ferromagnetic material and determine retentivity and coercivity.
9. To find radius of curvature of given lens using Newton’s rings.
10. To determine specific rotation of optically active solution using Laurent’s half shade polarimeter.
11. To determine wavelength of light using Fresnel’s Biprism.
12. To plot V-I Characteristic of Silicon diode in Forward bias and Reverse bias.
13. To plot V-I Characteristic of Zener diode in Forward bias and Reverse bias.
14. To plot V-I Characteristic of LED diode in Forward bias and Reverse bias.
15. To calculate efficiency of half wave and full wave rectifier.
Course Code : SH 1552    Course Title : Engineering Graphics Lab
Teaching Scheme : L : 00 hrs     T : 00 hrs     P : 04 hrs          Credits : 02
Evaluation Scheme: ISE: 50%    ESE: 50 %

Course Outcomes: After successful completion of the course, student will be able to

1. Develop the various types of plane curves by using AUTOCAD software.
2. Visualize and develop the orthographic views of object by using AUTOCAD software.
3. Imagine and develop the projection of regular solids and sectioned solids like Cone, Pyramid, Prism and Cylinder by using AUTOCAD software.
4. Develop the surfaces of regular solids and recognize the practical applications by using AUTOCAD software.
5. Develop the projection of point, line and plane by using method of first angle projection by using AUTOCAD software.
6. Visualize and develop the isometric view from orthographic views of object by using AUTOCAD software.

List of Practicals :

1. Use and practice of basic AutoCAD command like draw (line, rectangle, polygon, point, arc, plane)
2. Use and practice of modify commands (copy, move, mirror, trim, extend, scale)
3. Use and practice of advanced modify commands( Rotate, Explode, Measure, Divide, Dtext, Mtext)
4. Use and practice of properties of line (color, line weight, line type), customization of tool bar
5. Develop and draw the conic section curves, involutes, cycloids.
6. Imagine and draw the Front view, top view and side view of given simple object
7. Imagine and draw the sectional front view or sectional side view, and top view
8. Draw the projections of solids (Cone, Cylinder, prism, Pyramid) in various conditions
9. Draw the sectional view of solid in given conditions of the planes
10. Draw the development of the surfaces of the solids in given conditions
11. Imagine and draw the isometric view of the from the given orthographic views
12. Develop the projection of lines and its traces, projection of planes

Note: Drawings of Theory paper of MSE and ESE exam will be completed by using AUTOCAD software.
Course Code : SH 171  
Course Title : Civil Engineering Lab  

Teaching Scheme: L:00hrs  T:00hrs  P: 02hrs  Credits :01  
Evaluation Scheme: ISE: 50%  ESE: 50 %  

Course Outcomes: After successful completion of the course, student will able to  

1. Plan building using principles and bye laws.  
2. Perform horizontal and vertical measurement.  
3. Use modern surveying techniques.  
4. Perform rate analysis and valuation for items.  

List of Practicals :  

2. Reading the submission and working drawing of existing building.  
3. Preparation of submission plan for residential building. (using conventional method)  
4. Preparation of rate analysis of any two items.  
5. Compute valuation for building components.  
7. Calculation of RL by collimation plane method.  
8. Calculation of RL by RISE and FALL method.  
9. Perform Total station and Calculation of RL and included angle by TS  
10. Application and use of GPS for calculation of length & area
**Course Code**: SH 173  
**Course Title**: Mechanical Engineering Lab

<table>
<thead>
<tr>
<th>Teaching Scheme: L:00hrs</th>
<th>T:00hrs</th>
<th>P: 02 hrs</th>
<th>Credits:01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation Scheme: ISE: 50%</td>
<td>ESE: 50 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Course Outcomes**: After successful completion of the course, Student will be able to

1. Identify elements of power plants.
2. Estimate the velocity ratio of a given transmission system.
3. Select right manufacturing process to convert raw material into product.
4. Carry out the routine maintenance work of a given device.

**List of Experiments (Any 10 experiments)**:

1. Demonstration/trial on Steam Power plant.
2. A trial on solar panel system.
3. Demonstration/trial on two stroke and four stroke engines.
4. Demonstration/trial on diesel and petrol engine.
5. To estimate velocity ratio/gear ratio of transmission system.
6. To determine the efficiency of simple screw jack.
7. To calculate the Mechanical Advantage, Velocity Ratio and Efficiency of Worm and Worm Wheel.
8. Assembly and disassembly of Bicycle.
9. To build simple working mechanism.
10. To measure noise level in different machine tools.
11. Experiment to correlate head with discharge of centrifugal pump.
12. To select appropriate joining method for given application.
13. Demonstration/trial on different machine tools.
Course Code : SH 175  Course Title : Business Communication I Lab
Teaching Scheme: L-00hrs   T-00hrs   P: 02hrs   Credits:01
Evaluation Scheme: ISE: 50%   ESE: 50 %

Course Outcomes: After successful completion of the course, students will be able to

1. Demonstrate professional etiquette, manners and grooming.
2. Pronounce correctly the frequently used words using phonemic transcriptions.
3. Express themselves by using registers such as formal, technical, dialect etc.
4. Demonstrate reception skills of language.
5. Communicate messages using oral and written mode.

Instruction: All practicals should be compulsory.

List of Practicals:

1. Basic Etiquette and Manners
   - Greetings
   - Behavior – code of conduct (attitude, politeness, & assertiveness) , the 4 golden words
   - Gestures and postures.

2. Professional Appearance and Grooming
   - First impression, formal dressing, and grooming (for male and female)

3. Vocabulary building
   - Common idiomatic expressions, common phrasal verbs, one word substitution,
   - Homophones, homonyms, antonyms and synonyms

4. Phonetics:
   - Introduction to phonemic sounds, phonemic transcriptions,
   - Word stress, accent (reading dictionary, NGSL, standard videos with subtitles)

5. Listening
   - Active listening: DOs and DON’Ts,
   - Watching video and summarizing,
   - Listening to audio and answering questions

6. Reading
   - Reading techniques and its application;
   - Selected passages: skimming and scanning, guessing, and paraphrasing;
   - Selected dialogues
7. **Oral Communication - I**
   - Principles of oral communication,
   - Self-introduction and introducing others

8. **Oral Communication - II**
   - Extempore

9. **Written Communication - I**
   - Types of formal letters, student correspondence – format and language

10. **Written Communication - II**
    - Exercises on business letters and e-mails

**Text Book:**
1. John Seely, Oxford Guide to Effective Writing and Speaking, OUP, 2009

**Reference Books :**
7. Robert J. Dixson, Everyday Dialogues in English, Prentice Hall India Pvt Ltd.,
Course Code: SH 181  Course Title: Advanced Communication Lab

Teaching Scheme: L-00hrs  T-00hrs  P: 02hrs  Credits:01
Evaluation Scheme: ISE: 50%  ESE: 50 %

Course Outcomes: After successful completion of the course, students will be able to

1. Communicate effectively in English with proper usage of language.
2. Read and produce phonemic transcriptions and transcription of intonation patterns.
3. Design and deliver effective presentations.
4. Demonstrate effectively technical writing skills.

Instruction: All practicals should be compulsory.

List of Practicals:

1. Introduction to communication
   • Meaning
   • Process
   • Elements, Channels, Patterns
   • Barriers to communication.

2. Phonetics
   • Word stress
   • Weak and Strong forms
   • Important tips on transcription and accent

3. Study Skills
   • Note taking
   • Note making
   • Mind mapping

4. Study Skills
   • Literature Review
     a. First pass reading
     b. Second pass reading
     c. Third pass reading

5. Visual Literacy
   • Information transfer from
     a. Diagram to text
     b. Image reading
     c. Map reading
6. Technical paragraph development
7. Technical communication
   • Technical writing: project report
   • Introduction to letter - text combination format
8. Project Report Writing
9. Presentation Skills: project report presentation
   • Preparing presentations, tips and techniques of delivery
10. Project report presentation
    • Audience Questions
    • Constructive feedback

Text Book:
1. John Seely, Oxford Guide to Effective Writing and Speaking, OUP, 2009

Reference Books:
Course Code : SH 1612  
Course Title : Workshop practice-I Lab  
Teaching Scheme: L:00 hrs  T:00hrs  P: 02hrs  Credits:01  
Evaluation Scheme: ISE: 50%  ESE: 50 %

Course Outcomes: After successful completion of the course, Student will be able to

1. Acquire skills in basic engineering practice.
2. Use of hand tools and power tools.
3. Develop sheet metal model for specific application.
4. Understand the various operations performed in machine shop.
5. Perform different joining operations
6. Perform pipe fittings operations.
7. Perform Soldering of various electronic components.
8. Use of different measuring instruments in electronic circuits

List of Experiment :

1. Demonstration of different carpentry operations useful for making wooden pattern, furniture items etc. with the help of hand tools and power tools.
2. To make small jobs like dovetail joint, butt joint or T-joint using carpentry tools.
3. Demonstration of different Sheet metal operations useful for Sheet metal objects like CPU cabinet, Enclosures of inverter, Tray etc. by performing operations like Cutting, Bending, Folding.
4. To make small jobs like Electrical meter cover, transformer clamping.
5. Demonstration of different machining operations useful for machining objects like crankshaft, camshaft, axis-symmetric parts etc. by performing centre drilling, facing, plain turning, knurling and chamfering.
6. Demonstration of different joining processes for metal rods, plates and sheet metal.
7. To make Lap joint, butt joint or T-joint using metal joining techniques.
8. Demonstration of different piping connections, plumbing techniques in G.I, PVC, UPVC, CPVC fittings.
10. Demonstration of household wiring connections, wiring for experiments and assembly & disassembly of various Electrical appliances.
11. Demonstration of soldering and testing of electronic components.

(NOTE : All above experiments are to be performed in a group of two’s)

PRACTICAL DISTRIBUTION :

<table>
<thead>
<tr>
<th>Shop</th>
<th>(Practicals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpentry Shop</td>
<td>- (2)</td>
</tr>
<tr>
<td>Sheet Metal Shop</td>
<td>- (2)</td>
</tr>
<tr>
<td>Machine Shop</td>
<td>- (1)</td>
</tr>
<tr>
<td>Welding Shop</td>
<td>- (2)</td>
</tr>
<tr>
<td>Plumbing Shop</td>
<td>- (1)</td>
</tr>
<tr>
<td>Automobile Maintenance</td>
<td>- (1)</td>
</tr>
<tr>
<td>Electrical and Electronics</td>
<td>- (3)</td>
</tr>
</tbody>
</table>

72
Course Code: SH 1032  Course Title: Engineering Chemistry (Theory)

Teaching Scheme: L:03hrs  T:00hrs  P:00hrs  Credits:03

Evaluation Scheme:
ISE: 20%  UT 1:15%  UT 2: 15%  ESE: 50%

Course Outcomes: After successful completion of the course, student will be able to

1. Select the proper instrumental methods for the analysis of materials.
2. Analyze the water and apply the treatment for industrial use.
3. Identify factors affecting corrosion and measures to be taken to prevent corrosion.
4. Apply the electrochemical principles in classical and modern batteries.
5. Classify types of fuel and its analysis by instruments and other techniques.
6. Identify and select the proper lubricant and lubrication method.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of the content</th>
<th>Hrs.</th>
</tr>
</thead>
</table>
| 1.       | **Analytical techniques**  
           A) Spectrometry: Introduction, Lamberts Law, Lambert-Beer or Beer’s Law of spectroscopy, single beam spectrophotometer instrumentation with its applications.  
           B) Flame photometry: Principles, instrumentation, and applications of flame photometry.  
           D) Potentiometry: Introduction, principle, construction, working and application of potentiometer. | 6 |
| 2.       | **Water treatment**  
           Introduction, water quality parameters like total solids, acidity, alkalinity, chlorides, dissolved oxygen and hardness. Hardness: Types of water, causes of hardness, types, units, calculation of hardness, ill effects of hard water in various industries and boilers. Treatment of hard water for domestic purpose by sedimentation, coagulation and sterilization, treatment of water for industrial purposes by cold and hot lime soda, zeolite and ion exchange process. | 6 |
| 3.       | **Corrosion and its Control**  
           Introduction, Causes and types of corrosion, theories of corrosion and mechanism – Dry corrosion, Wet corrosion (Hydrogen evolution and Oxygen absorption), factors affecting corrosion. Corrosion control methods – Use of pure metals and metal alloys, Proper design, Cathodic protection, Surface coatings - methods of application on metals- hot dipping galvanizing, tinning, metal spraying. | 6 |
4. **Batteries and fuel cell**  
Basic concepts, Battery characteristics – primary, secondary and reserve batteries with examples, super capacitors.  
**Classical batteries**: Construction, working and applications of Zn – MnO₂, Lead acid storage and Ni – Cd batteries.  
**Modern batteries**: Construction, working and applications of Zn – air, Ni – metal hydride and Li – MnO₂ batteries.  
**Fuel cells** – Differences between battery and fuel cell, construction and working of H₂ – O₂ and CH₃OH– O₂ fuel cells.

5. **Fuels**  
Introduction, Types of fuels, calorific value and its types, characteristics of good fuel, Bomb calorimeter and Boy’s gas calorimeter, proximate analysis of coal.  

6. **Lubricants**  
Definition of lubricants, lubrication, purpose of lubrication, Classification of lubricants with examples: solid, semisolid, liquid, blended, synthetic, Mechanism of lubrication-thick film, thin film and extreme pressure lubrication, Physical and chemical properties of lubricant (definition and significance)-viscosity, viscosity index, flash and fire point, cloud and pour point, saponification value, acid value, additives of lubricants, selection of lubricants, numerical problems on saponification value.

**Text Books**:

**Reference Books**:
Course Code : SH 1022  Course Title : Engineering Mathematics II (Theory)
Teaching Scheme: L:03hrs   T:01hrs   P: 00 hrs   Credits:04
Evaluation Scheme:
ISE: 20%   UT 1:15% UT 2: 15% ESE: 50%

Course Outcomes: After successful completion of the course, student will be able to

1. Understand the concepts of matrices that serve as an essential basis for several computational techniques.
2. Understand the Vector approach with the help of Matrices.
3. Apply the knowledge of Ordinary differential Equations related to simple electrical circuits, orthogonal trajectory.
4. Select appropriate analytic techniques to compute solutions to differential equations related to liquid flows out through valve, stability and convergence, stiff systems.
5. Interpolate the values by using concerned numerical methods.
6. Recognize linear and non-linear equations and select appropriate numerical method to compute the solution.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Matrices:</strong> Rank of Matrix, Linear Dependence &amp; Independence of vectors, Cayley Hamilton theorem, Eigen Values &amp; Eigen Vectors of a square matrix, diagonalization of a real symmetric matrix.</td>
<td>8</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Ordinary Differential Equations of first order &amp; first degree:</strong> Solution of Exact differential equations, Solution of Non-Exact differential equations using integrating factors, linear differential equations (with constant coefficients) of higher order, variation of constants formula.</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Applications Of Ordinary Differential Equations:</strong> orthogonal trajectories, applications to simple electrical circuits.</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Numerical Solution of Linear and Nonlinear equations:</strong> Solution of linear systems of equations using Gaussian elimination; modified Gaussian elimination with pivoting, Jacobi and Gauss-Seidel methods. Solution of non-linear equations using Bisection method, Secant method, Newton-Raphson method, and fixed point iterative method.</td>
<td>8</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Interpolation, Numerical Differentiation and Integration:</strong> Lagrange’s and Newton’s forms of interpolating polynomials. Newton’s divided difference formulae. Forward, backward, central difference formulae for first order derivatives, formulae for higher order derivatives using interpolation, method of undetermined coefficients. Numerical integration formulae based on interpolation (Rectangle, mid-point, Trapezoidal, Simpson’s rules).</td>
<td>8</td>
</tr>
</tbody>
</table>
6. **Numerical Solution of ordinary differential equations of first order & first degree:** Euler’s method, Modified Euler’s methods, Runge-Kutta methods of second and fourth order.

**Textbooks:**


**Reference Books:**

Course Code : SH 1112    Course Title : Engineering Mechanics (Theory)
Teaching Scheme: L:03hrs   T:00hrs   P: 00 hrs     Credits:03
Evaluation Scheme:
ISE: 20%    UT 1:15%    UT 2: 15%    ESE: 50%

Course Outcomes: After successful completion of the course, student will be able to

1. Identify various forces and their effects, to analyze real life problems.
2. Construct free body diagram, to translate a physical problem into a form that can be analyzed mathematically by applying conditions of equilibrium.
3. Locate position of Centroid of the area and compute its moment of inertia about given axis required to design various structural elements.
4. Compute member forces of a truss subjected to external loads.
5. Apply fundamental concepts of Kinematics and Kinetics to the analysis of simple practical problems.
6. Apply fundamental concepts of lifting machines, to analyze real life problems.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
</table>
| 1.       | **Force systems and Equilibrium of force systems:**  
Introduction, Laws of Mechanics, Varignon’s theorem, Resultant of force systems, Free body diagram, equilibrium, Lami’s theorem, analysis of simple and compound beams. | 8    |
| 2.       | **Centroid and Moment of Inertia:**  
Centroid of plane and composite figures, parallel axis and perpendicular axis theorems, Moment of Inertia of plane and composite figures. | 5    |
| 3.       | **Friction and Analysis of plane trusses:**  
Friction: Introduction to Laws of friction, Surface friction for bodies on horizontal and inclined planes, Application to problems involving wedges, ladders.  
Analysis of plane trusses by using Method of joints and Method of sections. | 6    |
| 4.       | **Kinematics and Kinetics**  
Kinematics of a Particle:  
Kinematics: Introduction to rectilinear motion and circular motion, motion curves, projectile motion.  
Kinetics of a Particle: Force and Acceleration  
Kinetics: Newton’s second law of motion, D’ Alembert’s Principle and concept of dynamic equilibrium, application to problems on horizontal plane and inclined plane. | 6    |
| 5.       | **Kinetics of a particle: Work, Power & Energy, Impulse and Momentum**  
6. **Lifting machines:**
   Principles of machines to evaluate Mechanical Advantage, Velocity Ratio of simple machines, Simple and compound machines, Laws of Machines, reversible & non reversible machines.

Text Books:

Reference Books:
**Course Code :** SH 127  
**Course Title :** Computer Programming (Theory)  
**Teaching Scheme:** L:03hrs  T:00hrs  P: 00hrs  Credits:03  
**Evaluation Scheme:**  
ISE: 20%  UT 1:15%  UT 2: 15%  ESE: 50%  

**Course Outcomes:** After successful completion of the course, student will be able to

1. Design algorithms and draw flowchart for given problems  
2. Write, Compile and execute programs using C language  
3. Analyse problems and design proper solutions using C language.  
4. Design C programs involving control statements and apply them in relevant fields.  
5. Describe the basic concepts of C programming language such as array, pointers and structures

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
</table>
| 1       | **Introduction to ‘C’ Language and Algorithm**  
Importance of ‘C’ Language, Sample ‘C’ Program, Structure of ‘C’ Program, Constants, variables and data types. Operators and expressions.  
**Algorithm:** Fundamentals, designing simple algorithms for given problems, Definition of flowchart, notations, Applications of algorithms and flowchart | 5    |
| 2       | **Managing I/O operations and Control Statements**  
Managing input / output operations, Control statements: Decision making and branching, Decision making and looping. | 7    |
| 3       | **Functions**  
Basics of function, definition, declaration and calling of function, Function prototype, method of parameter passing- call by value | 6    |
| 4       | **Arrays**  
Array: Basics of array, array declaration and initialization, one and two dimensional arrays, character arrays, string. | 6    |
| 5       | **Pointer**  
Pointer: Fundamentals, pointer declaration, operations on pointer, pointer to an array, Method of parameter passing- call by value: Call by reference. | 6    |
| 6       | **Structures**  
Basics of structure, structure declaration and initialization, Methods of passing structure variable to function, Nested structure. | 6    |

**Text Books:**

2. K. Balaguruswamy, Programming in ANSI C TGMH Publication.  

**Reference Books:**

1. B.W. Kernigghan and D. M. Ritchie, The ‘C’ Programming Language, Pearson Education.  
Course Code: SH 129  Course Title: Electrical Engineering (Theory)
Teaching Scheme: L:03 hrs  T:00 hrs  P:00hrs  Credits:03
Evaluation Scheme:
ISE: 20%  UT 1:15% UT 2: 15% ESE: 50%

Course Outcomes: After successful completion of the course, student will be able to

1. Recognize electrical power system components and practice safety as well as precautionary measures in day to day electricity usage.
2. Apply knowledge gained to solve electric and magnetic circuits.
3. Compare Electric and Magnetic circuits
4. Explain construction, working, characteristics and state applications of Electric Machines
5. Draw wiring diagram and layout of general wiring and illumination system for a selected location.
6. Prepare Estimate of a typical wiring and illumination system.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Details of Content</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Overview of Electrical Power System:</strong> Single Line Diagram, Components of EPS – Transmission line, Substation, Fuse, MCB, CT, PT, etc. Smart grid, wind and solar energy systems, Global and regional energy scenario, Electrical safety precautions, electric shock hazards &amp; treatments</td>
<td>6</td>
</tr>
</tbody>
</table>
| 2.       | **A.C. Circuits**
Generation of sinusoidal voltage, R.M.S. & Average value, Phasor representation, R-L, R-C, R-L-C series and parallel circuits powers, power factor, pf improvement (numerical expected), energy conversion from electrical to mechanical & thermal, tariff (numerical expected), 3 phase supply, Alternator construction, Star (Y) & Delta (Δ) Connection, balanced three phase system, relation between line and phase quantities | 6    |
| 3.       | **Magnetic Circuits:**
MMF, reluctance, Series/parallel Magnetic Circuits, magnetic leakage & fringing, BH curve, Magnetic losses, comparison between mag. & elect. Circuits. (numerical expected), Simple design calculations of solenoid, electromagnets, actuators. (numerical expected), Applications of solenoids in industry. | 6    |
| 4.       | **Transformers**
**Single phase Transformer:** Construction, operating principle, Types, EMF equation, transformer ratio, applications, (numerical expected)
**Three phase transformer:** Construction, Types of connections. | 6    |
| 5.       | **Electric Machines**
Construction, types, operating principle of DC machines, back emf, Induction motors, special types of machines like universal motor, stepper motor, Applications. | 6    |
Electric wiring, Lamps and Illumination
Different types of wires and cables, wiring and illumination layout, estimation, lamps.

Text books:

Reference Books:
2. PV Prasad and S. Shivanaraju, Electrical Engineering Concepts and Applications, CENGAGE Learning
**Course Code**: SH 1532  
**Course Title**: Engineering Chemistry Lab

**Teaching Scheme**: L:00hrs  T:00hrs  P: 02hrs  Credits:01

**Evaluation Scheme**: ISE: 50%  ESE: 50%

**Course Outcomes**: After successful completion of the course, student will be able to

1. Analyze the materials by using analytical instruments.
2. Identify the quality of water for industrial and domestic purposes.
3. Apply the knowledge of electrochemistry for design of various cells and batteries.
4. Select proper Lubricant for different machines according to working condition.
5. Identify the quality of fuel.

**List of Practicals**:

1. Determination of concentration of metals by using spectrophotometer.
2. Estimation of iron by photo-calorimeter.
3. Estimation of Sodium and Potassium in the given sample of water using Flame Photometer.
5. To estimate strength of given hydrochloric acid solution by titrating it against sodium hydroxide solution (0.1N) by potentiometer.
6. Separation of components from the mixture by using TLC/Paper Chromatography.
7. Estimation of total hardness/ chloride content of given sample.
10. Determination of moisture, volatile mater and ash content of a given coal sample by proximate analysis.
11. Determination of calorific value of fuel by using bomb calorimeter instrument.
12. Determination of viscosity/ Acid value/ Saponification number of given lubricating oil by Viscometer.
Course Code: SH 1631  Course Title: Engineering Mechanics Lab

Teaching Scheme: L:00hrs  T:00hrs  P:02hrs  Credits:01

Evaluation Scheme: ISE: 50%  ESE: 50 %

Course Outcomes: After successful completion of the course, student will be able to

1. Verify law of polygon of forces, law of triangle of forces and principle of moment.
2. Correlate theoretical and practical results of support reactions and Centroid of plane lamina.
3. Compare coefficient of friction of various surfaces in contact.
5. Calculate mechanical advantage, velocity ratio and efficiency of lifting machines.
6. Function effectively as an individual and in a team as effective team member to perform given task.

Instruction:

Students have to perform minimum 8 experiments from Part I and 2 experiments from part II.

List of Practicals:

PART-I

1. Law of polygon of forces
2. Bell Crank Lever
3. Jib Crane
4. Support Reactions
5. Lami’s Theorem
6. Centroid of plane & composite figures
7. Friction on inclined plane
8. D’ Alembert’s Principle
10. Gravitational Acceleration
11. Resultant of Concurrent/ Non concurrent/ Support Reactions of beams

PART-II

12. Simple wheel and axel
13. Differential axel and wheel
14. Single Gear crab
15. Worm and worm wheel single
16. Simple screw jack
<table>
<thead>
<tr>
<th>Course Code : SH 177</th>
<th>Course Title : Computer Programming Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Scheme:</td>
<td>L:00hrs  T:00hrs  P: 02hrs  Credits:01</td>
</tr>
<tr>
<td>Evaluation Scheme:</td>
<td>ISE: 50%  ESE: 50%</td>
</tr>
</tbody>
</table>

**Course Outcomes:** After successful completion of the course, student will be able to

1. Design algorithms and draw flowchart for given problems.
2. Write, Compile and execute programs using C language.
3. Analyse problems and design proper solutions using C language.
4. Design C programs involving control statements and apply them in relevant fields.
5. Describe the basic concepts of C programming language such as array, pointers and structures.

**Instruction:**

The laboratory should consist of minimum 12 experiments based on the given topics

**List of Practicals:**

1. Algorithm: Different problem statements are given to draw an algorithm and flowcharts
2. Basics of C Language
3. Control Statements: Decision making and branching
4. Control Statements: Decision making and looping
5. Function: Call By value
6. Array:- Basics of one dimensional and two dimensional array
7. Basics of Sting and operation on string
8. Pointer: Call By reference
9. Array of Pointer
10. Structure
Course Code: SH 179  
Course Title: Electrical Engineering Lab

Teaching Scheme: L:00 hrs  T:00 hrs  P:02 hrs  Credits:01

Evaluation Scheme: ISE: 50%  ESE: 50%

Course Outcomes: After successful completion of the course, student will be able to

1. Demonstrate electrical safety precautions
2. Identify electrical components & equipment and Use symbolic representation to represent in any electric circuit.
3. Verify Laws and Theorems for DC circuits like KCL, KVL, etc.
4. Draw magnetization curve for magnetic material
5. Calculate electrical parameters like Resistance, Inductance, Capacitance with appropriate measuring instruments.
6. Verify relation between electrical parameters in 3 phase circuits.
7. Determine capacitor rating for power factor improvement.
8. Calculate efficiency and regulation of a 1 phase transformer.

List of Practicals:

1. Demonstration about Basic Electrical Engineering Laboratory, experimental setups, instruments, Electrical Symbols and safety precautions.
3. Draw B-H curve for magnetic material.
5. Verification of relation between Line and Phase quantities in three phase star-delta circuit connection.
6. Determination of reactive power requirement of an electrical installation for power factor improvement.
7. Direct on load test on 1 phase transformer.
8. Load test on Induction motor.
9. Wiring of two-way and three way switching of lamp; Use of Fuse and Miniature Circuit breaker.
10. Calibration of single phase energy meter.
11. To test a battery for its charged and discharged condition and to make connections for charging.
12. To connect a tube light and to study its minimum operating voltage, current, power factor and power.
13. Calculation of earth resistance and Discuss importance of earthing for electrical installations.
Self-Learning activity

*Students will be given any of the following activity in a group as one experiment*

1. Analyze the performance of battery system used in various applications such as automobile, Inverters, UPS, etc.

2. Investigate domestic electric bill and understand various costs involved according to classification of consumers.

3. Prepare Illumination scheme and its estimation for any of the following;
   a) Class room
   b) Laboratory
   c) Bank or corporate office
   d) Landscape
   e) Outdoor Illumination of sports ground
   f) any other

4. Examination of domestic electrical appliances- Working principle, construction, components and troubleshooting.

5. Analysis of wiring layout service mains, meter board and distribution boards and preparation of Bill of Materials and estimation for electrification of a building.

6. Evaluate different luminaries such as Incandescent lamp, vapor lamps, fluorescent tube, CFL, LED lamps for various applications.

7. Practice soldering of various electric and electronic components.
### Course Code: SH 156  
### Course Title: Business Communication II Lab  

**Teaching Scheme:** L-00hrs T-00 hrs P: 02 hrs  
**Credits:** 01  

**Evaluation Scheme:** ISE: 50% ESE: 50%  

### Course Outcomes:

- After successful completion of the course, student will be able to
  1. Exhibit core soft skills like team skills, body language, and interpersonal communication.
  2. Demonstrate appropriate body language.
  3. Exhibit team skills.
  4. Participate in professional communication (oral & written).
  5. Prepare for power point presentations.

### Instruction:

All practicals should be compulsory.

### List of Practicals:

1. **Goal Setting (SMART) and SWOT/C analysis**
2. **Body Language - I**
   - Postures
   - Gestures
   - Facial expressions
3. **Body Language - II**
   - Oculesics
   - Proxemics
   - Haptics
4. **Team Skills - I**
   - Activity followed by discussion on team skills.
   - Time management
5. **Team Skills - II**
   - Exercises on team skills
6. **Situational conversations Role plays on -**
   - Real life situations
   - Business situations
7. **PPT Presentation - I**
   - Preparing for presentations
8. **PPT Presentation - II**
   - Group presentations
9. **Business Correspondence - I**
   - Notices, circulars, and memos

10. **Business Correspondence - II**
    - Business letters -
    - Inquiry, complaint, quotation, placing order
    - Acceptance, refusal, thanking note

**Text Book:**
1. John Seely, Oxford Guide to Effective Writing and Speaking, OUP, 2009

**Reference Books:**
7. Robert J. Dixson, Everyday Dialogues in English, Prentice Hall India Pvt Ltd.,
**Course Code**: SH 158  
**Course Title**: Japanese Language Level I

<table>
<thead>
<tr>
<th>Teaching Scheme:</th>
<th>L-00hrs</th>
<th>T-00 hrs</th>
<th>P: 02 hrs</th>
<th>Credits:01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation Scheme:</td>
<td>ISE: 50%</td>
<td>ESE: 50 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Course Outcomes**: After successful completion of the course, student will be able to

1. Demonstrate Japanese scripts through oral and written communication.
2. Express themselves by using simple sentences and responses to questions.
3. Converse in Standard Japanese to perform basic communicative tasks (e.g., exchange greetings/personal information, give time/directions/daily activities)

**Instruction**: All practicals should be compulsory.

**List of Practicals**: 
1. Script: Hiragana, Katakana, Kanji
2. Classroom Instructions: Daily greetings and expressions
3. Numerals, Clock, Calendar
4. Grammar: Use of Demonstratives
5. Use of Adjectives
6. Different Tenses and it’s negation
7. Conversation: Self Introduction, Asking address
8. Conversation: Inviting someone, Asking meaning of word/sentence
9. Asking impression or opinion of listener
10. Japanology: History and Geography of Japan, Festivals and traditions in Japan
12. Practice session

**Note**:

There will not be any fixed text book for the above given syllabus
The extra notes will be provided to the students to complete the required syllabus
Course Code: SH 160  
Course Title: German Language Level I

Teaching Scheme: L-00hrs  T-00 hrs  P: 02 hrs  Credits:01

Evaluation Scheme:  ISE: 50%  ESE: 50 %

Course Outcomes: After successful completion of the course, student will be able to

1. Understand and use familiar everyday expressions and basic phrases.
2. Apply correct usage of German grammar.
3. Interact in a simple way

Instruction: All practicals should be compulsory.

List of Practicals:

1. Introduction: Name, country, living place, languages etc., Asking the other person’s information, Greetings
2. Introduction: German Alphabets, Numbers (1 -100), Giving and asking Information related to numbers (age, telephone number, mobile number etc.)
3. Formal And Informal Form
4. Grammar: Personal Pronouns, verb conjugation, Definite , indefinite, negative articles Possessive Articles with the reference of all the nouns
5. Watch timings learning: Routine activities Questions related to time, (use of prepositions am, um)
6. Conjugation of strong verbs: Use of separable verbs in the sentences
7. Vocabulary Building: Eating and drinking , Use of accusative in the sentences
8. My house/ my room: Learning of vocabulary related to living (furniture, room names etc.), Teaching of ordinal numbers.
10. Keeping the things on the proper place: Changing Prepositions with the action question Wohin?
11. Learning the professions: Telling about and asking for the professions
12. Learning modal verbs with reference to the professions

Note:

There will not be any fixed text book for the above given syllabus

The extra notes will be provided to the students to complete the required syllabus
Course Code: SH 1522  Course Title: Workshop practice-II Lab

Teaching Scheme: L:00 hrs T:00hrs P: 02hrs  Credits:01
Evaluation Scheme: ISE: 50%  ESE: 50 %

Course Outcomes: After successful completion of the course, student will be able to:

1. Make wooden job.
2. Make Sheet metal job.
3. Make job by various machining processes.
4. Make job by joining processes.
5. Make electronic circuits.

Based on the skills acquired by students in Semester-I, they will choose any two jobs of their interest and make them with the help of these skills individually. Following is the list of some sample jobs which can be selected but not limited. They can choose any product and make it. Assessment will be based on the quality of product.

Sample Job list:

- Office tray
- Stackable shelves
- Wooden table
- Domestic water motor cover
- Tray
- Electric motor cover
- Metal detection system
- Magazine rack
- Wooden stool
- Transformer enclosure
- Mailbox
- Dust-collector tray
- Water Level Indicator
- Strain measurement system
- Switch board
- Wooden Paat
- Material handling wooden dolly
- Dustbin
- Picture frame
- Light control indicator
- Material handling wooden dolly
- Strain measurement system

PRACTICAL DISTRIBUTION:

Job-1

Week-1  Selection of Job and approval from instructor.
Week-2  Preparation of drawing, approval of drawing and material selection.
Week-3  To make a job as per the drawing by using various operations in different sections of workshop.
Week-4  To make a job as per the drawing by using various operations in different sections of workshop.
Week-5  To make a job as per the drawing by using various operations in different sections of workshop.
Week-6  Assessment of Job.

Job-2

Week-7  Selection of Job and approval from instructor.
Week-8  Preparation of drawing, approval of drawing and material selection.
Week-9  To make a job as per the drawing by using various operations in different sections of workshop.
Week-10 To make a job as per the drawing by using various operations in different sections of workshop.
Week-11 To make a job as per the drawing by using various operations in different sections of workshop.
Week-12 Assessment of Job.
Useful Resources at a Glance:

<table>
<thead>
<tr>
<th>Useful Resources</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>80000 + Books, 8200+ references, more than 120 print national and international journals</td>
</tr>
<tr>
<td>e-Library</td>
<td>7817 e-journals (full text available), Online access to Science Direct, IEEE Journals and other e-learning resources.</td>
</tr>
<tr>
<td>ISTE Students’ Chapter</td>
<td>The activities of Indian Society for Technical Education through students’ chapter RIT motivates the students in direction of technical excellence.</td>
</tr>
</tbody>
</table>
| RIT SPEED (Student Platform for Engineering Education & Development)             | * SPEED is a globally recognized students association.  
* Through RIT SPEED events (RSF, ISF, GSF, Educational tours, Social activities), students have attained overall growth resulting in increased EMPLOYABILITY.  
* RIT SPEED initiatives (Global Education and Exposure, RIT Robotics Lab, Software Development & Hosting) help students in getting selected in WORLD-CLASS UNIVERSITIES for Higher Studies. |
<p>| CESA, ESSA, MESA, AESA, ASCI (Students Associations of Various Departments)      | Provides platforms to the students for their overall development                                                                                                                                             |
| Central Computing Center                                                        | Specially designed for computing services and like internet, RFID System, Wi-Fi, hardware and software services                                                                                             |
| Workshop                                                                       | RIT has a full-fledged workshop for hands-on training to the next generation engineers.                                                                                                                     |
| Gymkhana                                                                       | In-campus gymnasium and indoor games, open sports complex adjacent to the Institute                                                                                                                        |
| Cultural Cell                                                                   | Cultural activities and youth programmes provide opportunities for the latent potentialities of the students to find an outlet in joyous and constructive ways.                                              |</p>
<table>
<thead>
<tr>
<th><strong>Girl Students’ Development Cell</strong></th>
<th>Despite the programs like Health Counselling, Lectures on Social Justice to Woman the cell has presenting some beautiful performance through its popular feature “SHARDANAYAS”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grahak Bhandar</strong></td>
<td>The RIT Students Consumers’ Cooperative Stores caters the needs right from stationary and cutlery items to cosmetics and dress materials for uniform.</td>
</tr>
<tr>
<td><strong>Student Counseling Cell</strong></td>
<td>It focuses on chronic failures as well as chances of getting converted in habitual failures among students. (Mr. M. M. Mirza, Cell In-charge, Contact No. 9970700795)</td>
</tr>
<tr>
<td><strong>Bank and ATM</strong></td>
<td>All banking needs of the student and staff-members are taken care of by Rajarambapu Sakhari Bank Ltd. Peth, Branch: Rajaramnagar, situated in the campus. The bank has installed ATM with RuPay facility. The ATM is located in the new library building.</td>
</tr>
<tr>
<td><strong>Medical Facility</strong></td>
<td>Health care is provided 24X7 to all the students in the campus. Dispensary in the campus addresses the preliminary medical needs of the students. Health care center has ambulance services for any medical emergency in the campus.</td>
</tr>
<tr>
<td><strong>Transport Facility</strong></td>
<td>RIT provides transport facility to students in five exclusive buses. It connects Karad, Sangli, and Kolhapur. RIT plies separate buses for girls from Karad and Sangli. Faculty and staff avail this facility. The transport facility makes travelling from these cities comfortable, time saving, and safe.</td>
</tr>
<tr>
<td><strong>Xerox Facility</strong></td>
<td>Students can avail this facility in the Administrative Office and in the Library.</td>
</tr>
<tr>
<td><strong>Important Links</strong></td>
<td><a href="http://www.ritindia.edu/">http://www.ritindia.edu/</a> To know about recent developments, activities and events in the institute. <a href="http://210.212.171.168/ritcloud/default.aspx">http://210.212.171.168/ritcloud/default.aspx</a> To get placement related data, to know more about books in the library, to avail learning resources, etc.</td>
</tr>
</tbody>
</table>
Department Wise List of Faculty Advisors (a trusted counselor or guide):

<table>
<thead>
<tr>
<th>Branch</th>
<th>Batch</th>
<th>Name of Mentor</th>
<th>Mobile No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile Engineering</td>
<td>Batch : I</td>
<td>Prof. N. M. Patil</td>
<td>9970700987</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. P. S. Ghatage</td>
<td>9403535452</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Prof. A. T. Suryavanshi</td>
<td>9405435353</td>
</tr>
<tr>
<td>Computer Sciences and Engineering</td>
<td>Batch : I</td>
<td>Prof. A. C. Adamuthe</td>
<td>9860015683</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. S. A. Thorat</td>
<td>9970700970</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Prof. S. U. Mane</td>
<td>9970283875</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Batch : I</td>
<td>Prof. P. B. Salgar</td>
<td>9921218689</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. R. K. Patil</td>
<td>9921095005</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Prof. H. U. Mulay</td>
<td>9860254652</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>Batch : I</td>
<td>Prof. S. S. Sontakke</td>
<td>9028090793</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. Vaijnath KalKhambhar</td>
<td>9610408703</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Prof. S. S. Sontakke</td>
<td>9028090793</td>
</tr>
<tr>
<td>Electronics and Telecommunication</td>
<td>Batch : I</td>
<td>Prof. Ms. S. S. Sawant</td>
<td>9975762989</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. Dr. Mrs. J. S. Awati</td>
<td>8600009767</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Prof. S. S. Mane</td>
<td>9665722396</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Batch : I</td>
<td>Prof. Mrs. A. B. Patil</td>
<td>9970700994</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. Mr. D. Rajesh</td>
<td>7757000727</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Mrs. S. P. Patil</td>
<td>9970700899</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Batch : I</td>
<td>Prof. P. V. Gunjvate</td>
<td>8600009758</td>
</tr>
<tr>
<td></td>
<td>Batch : II</td>
<td>Prof. S. N. Sawant</td>
<td>8600600524</td>
</tr>
<tr>
<td></td>
<td>Batch : III</td>
<td>Prof. M. M. Mirza</td>
<td>9970700795</td>
</tr>
<tr>
<td></td>
<td>Batch : IV</td>
<td>Prof. M. L. Deshpande</td>
<td>9890080722</td>
</tr>
<tr>
<td></td>
<td>Batch : V</td>
<td>Prof. P. S. Jadhav</td>
<td>7757000288</td>
</tr>
<tr>
<td></td>
<td>Batch : VI</td>
<td>Prof. D. S. Chavan</td>
<td>9970700780</td>
</tr>
</tbody>
</table>
## Scholarship Criteria Details

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Scholarship Details</th>
<th>Criteria</th>
<th>Scholarship Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Category Scholarship</strong></td>
<td>SC/ST - Bellow 2 Lakhs Income</td>
<td>100% Tuition fee + Exam fee + Development fee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SBC/VJNT - Bellow 1 Lakh Income</td>
<td>100% Tuition fee + Exam fee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OBC – Bellow 1 Lakh Income</td>
<td>50% Tuition fee + Exam fee</td>
</tr>
<tr>
<td>2</td>
<td><strong>Category Free ship</strong></td>
<td>SC/ST – No Limit</td>
<td>100% Tuition fee + Exam fee + Development fee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SBC/VJNT – Bellow 4.5 Lakhs Income</td>
<td>100% Tuition fee + Exam fee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OBC – Bellow 4.5 Lakhs Income</td>
<td>50% Tuition fee + Exam fee</td>
</tr>
<tr>
<td>3</td>
<td><strong>Economically Backward Class (EBC) Open Category</strong></td>
<td>Bellow 1 Lakh Income</td>
<td>50% Tuition fee</td>
</tr>
<tr>
<td>4</td>
<td><strong>Central Sector Scholarship</strong></td>
<td>Bellow 6 Lakhs Income</td>
<td>Rs. 10,000/-</td>
</tr>
<tr>
<td>5</td>
<td><strong>Minority Scholarship</strong></td>
<td>Bellow 2.5 Lakhs Income</td>
<td>Rs. 25,000/-</td>
</tr>
<tr>
<td>6</td>
<td><strong>Physically Handicapped Scholarship</strong></td>
<td>Physically Handicapped Students</td>
<td>100% Tuition fee</td>
</tr>
<tr>
<td>7</td>
<td><strong>Primary School Teachers Concession</strong></td>
<td>-</td>
<td>Rs. 4000/-</td>
</tr>
<tr>
<td>8</td>
<td><strong>Secondary School Teacher Concession</strong></td>
<td>-</td>
<td>Rs. 4000/-</td>
</tr>
<tr>
<td>9</td>
<td><strong>Hostel Maintenance Allowance</strong></td>
<td>SC, VJNT, &amp; SBC Scholarship Student</td>
<td>-</td>
</tr>
</tbody>
</table>
Student Counseling Cell

Student Counseling Cell Structure

- Dr. Mrs. S. S. Kulkarni - Chairperson
- Dr. S. M. Sawant - Member
- Mr. Kalidas Patil - Member
- Dr. Mrs. Jigna Shah - Member
- Mr. M. M. Mirza - Secretary

All class monitors are working as counselors.

It focuses on increasing the number of students completing the course in four years with good academic record. Cell is providing following facilities.

Personal Counseling: facility to motivate the student towards good academic performance. It also helps those students who have examination stress or fear, depression due to familial, academic or any other problem. RIT conducts counseling sessions and workshops to address these problems and to motivate and help such students in their academic and personality development. The institute has hired Dr. Mrs. Jigna Shah & Mr. Kalidas Patil as Personal counselors.

* Awareness Programmes
* Merit Scholarship
* Parent Meet
* Seminars and workshops
* Group counseling
Anti Ranging Committee

It is prestigious that RIT campus is free from ragging, but I want to remind you about the anti-ragging affidavit signed by you and your parent and hoping you will act accordingly. It has been rightly said that the end may not always justify the means. Behind the façade of ‘welcoming’ new students to college, ragging, in actuality, is a notorious practice wherein the senior students get an excuse to harass their junior counterparts, and more often than not, make them easy targets to satiate their own perversive sadistic pleasures. Apart from sustaining grievous physical injuries, those unfortunate students who succumb to ragging either develop a fear psychosis that haunts them throughout their lives, or worse, quit their college education even before it begins. For any student who slogs day and night to secure admission into a prestigious college, ragging can be his or her worst nightmare come true. It would not be an exaggeration to say that, today, ragging has taken the shape of a serious human rights violation with even the most respected and disciplined educational institutes falling prey to it.

Dr. Mrs. S. S. Kulkarni
Director

How Ragging Affects the Victim

1. An unpleasant incident of ragging may leave a permanent scar in the victim’s mind that may haunt him for years to come.
2. The victim declines into a shell, forcing himself into humiliation and alienation from the rest of the world.
3. It demoralizes the victim who joins college life with many hopes and expectations.
4. Though incidents of physical assault and grievous injuries are not new, ragging also simultaneously causes grave psychological stress and trauma to the victim.
5. Those students who choose to protest against ragging are very likely to face isolation from their seniors in the future.
6. Those who succumb to ragging may drop out; thereby obstructing their career prospects.
7. In extreme cases, incidents of suicides and homicide have also been reported.

How Ragging Affects the Victim’s Family

One can imagine the plight of a ragging victim’s family, especially his or her parents who see their child suffering in pain and stress. Besides incurring medical and other incidental expenses to rehabilitate their child, they also have to bear the trauma of seeing his or her prospective career coming to an end.

How Ragging Affects the Educational Institution

1. Severe media barrage in extreme cases of ragging lowers the character of the educational institution and destroys the respect and faith it commands from society.
2. Those who indulge in ragging bring a bad name to their college thereby hinder its reputation and goodwill in society.
How Ragging Affects the Raggers

1. Ragging does not spare even its perpetrators. Those found guilty of ragging may be suspended, blacklisted and even permanently expelled from college.

2. Raggers could be given rigorous imprisonment up to three years or a fine up to Rs.25000/-, or both. The educational institutions may prescribe other punishments such as suspension from classes, from the hostel, etc.

Anti-ragging Committee:

Anti-ragging committee headed by Honorable Director is taking care for making RIT campus ragging free. Anti-ragging committee does following things for students:

- Arrange lectures to create awareness about anti-ragging rules and regulations.
- Addresses complaints received through complaint register or any other way.
- At the institution level anti-ragging squad has been formed. The squad frequently visits places like hostels, canteen, library, play-ground, etc.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Member</th>
<th>Designation</th>
<th>Contact Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Dr. Mrs. S. S. Kulkarni</td>
<td>Chairman Director</td>
<td>9970700701</td>
</tr>
<tr>
<td>02</td>
<td>Prof. M.T. Telsang</td>
<td>Member Dean, Academic</td>
<td>9970700705</td>
</tr>
<tr>
<td>03</td>
<td>Dr. S. M. Sawant</td>
<td>Member Dean, Students Development</td>
<td>9970700951</td>
</tr>
<tr>
<td>04</td>
<td>Dr. S.S. Gawade</td>
<td>Member Rector</td>
<td>9970700945</td>
</tr>
<tr>
<td>05</td>
<td>Shri. S.G. Bhosale</td>
<td>Member Dy. Warden</td>
<td>9890080723</td>
</tr>
<tr>
<td>06</td>
<td>Dr. Mrs. Jigna Shah</td>
<td>Member Psychologist</td>
<td>02342224754</td>
</tr>
<tr>
<td>07</td>
<td>Prof. M.M. Mirza</td>
<td>Member Secretary Head, Students Counseling</td>
<td>9970700795</td>
</tr>
</tbody>
</table>

Anti Ragging Squad

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Member</th>
<th>Designation</th>
<th>Contact Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Prof. M.M. Mirza</td>
<td>Chairman</td>
<td>9970700795</td>
</tr>
<tr>
<td>02</td>
<td>Dr. S.S. Gawade</td>
<td>Member</td>
<td>9970700945</td>
</tr>
<tr>
<td>03</td>
<td>Prof. R. T. Patil</td>
<td>Member</td>
<td>8275029101</td>
</tr>
<tr>
<td>04</td>
<td>Prof. Mrs. S. S. Patil</td>
<td>Member</td>
<td>9970700918</td>
</tr>
<tr>
<td>05</td>
<td>Prof. Mrs. S. P. Patil</td>
<td>Member</td>
<td>9970700899</td>
</tr>
<tr>
<td>06</td>
<td>Prof. Mrs. S. N. Patil</td>
<td>Member</td>
<td>9890459955</td>
</tr>
<tr>
<td>07</td>
<td>Prof. Y. R. Patil</td>
<td>Member</td>
<td>8149240891</td>
</tr>
<tr>
<td>08</td>
<td>Prof. Subodh Inleshwar</td>
<td>Member</td>
<td>8600600278</td>
</tr>
</tbody>
</table>
Vishakha Cell
(Sexual Harassment Prohibitory Cell)

Vishakha Cell has been established in 2002. It aims at:

- Building self-esteem & dignity among girl students & ladies faculty.
- Offering services such as counseling, legal aid in case of atrocities against women.
- Creating awareness regarding women rights.
- Arrange programs regarding health, personality development etc.
- Avoiding & prohibiting sexual harassment at workplace.

Vishakha Cell Organizes

- Expert lectures on Health Awareness
- Seminars on Gender Sensitization
- Workshops on Legal Aspects concerned with Women
- “Shardanyas” cultural event exclusively for girl Students

List of F.Y.B.Tech. Class Co-ordinators

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Division</th>
<th>Name of the Class Co-ordinators</th>
<th>Mobile No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A</td>
<td>Dr. D. M. Kadam</td>
<td>7841906464</td>
</tr>
<tr>
<td>2.</td>
<td>B</td>
<td>Mr. M. H. Devkar</td>
<td>9970010599</td>
</tr>
<tr>
<td>3.</td>
<td>C</td>
<td>Dr. C. P. Samson</td>
<td>7350277286</td>
</tr>
<tr>
<td>4.</td>
<td>D</td>
<td>Mrs. A. U. Gaikwad</td>
<td>9822944393</td>
</tr>
<tr>
<td>5.</td>
<td>E</td>
<td>Gauresh Rao</td>
<td>9890367736</td>
</tr>
<tr>
<td>6.</td>
<td>F</td>
<td>Miss. M. B. Mali</td>
<td>9960337590</td>
</tr>
<tr>
<td>7.</td>
<td>G</td>
<td>Mrs. Aditi Sharma</td>
<td>9977051816</td>
</tr>
<tr>
<td>8.</td>
<td>H</td>
<td>Mr. P. N. Pawar</td>
<td>9404296048</td>
</tr>
</tbody>
</table>