

## **OUR VISION**

To create professionally competent Engineers with human values and social commitment.

## **OUR MISSION**

Offer well balanced curriculum with student-centric approach.

Encourage students to participate in innovation, lifelong learning and research.

Impart ethical and human values focusing on rural needs and sustainability.

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## **1. About Sree Buddha College of Engineering**

Sree Buddha College of Engineering (SBCE) is founded by Sree Buddha Educational Society, Kollam which is registered under “Charitable Societies Act of Travancore - Cochin 1955, with Registration No. Q - 689/01. The Head Quarters of the Society is at Venad Shopping Complex, Near S.N. College, Kappalandi junction, Kollam - 691 021. The cardinal teachings of Lord Buddha viz. compassion, benevolence, scientific temper and above all the concept of middle path are the guiding principles of this society.

### **1.1. The Management**

The 1980s saw a wave of change sweep across the Higher education scenario in the state. Mediocrity gave way to excellence and a galaxy of eminent men responded to the changing situation with maturity, clarity and clairvoyance. Since then they have never looked back and are now proud owners of many renowned institutions.

The Management of this college is a blend of academicians, executives and industrialists. They believe in doing things differently. In today's world of modern challenges, global competition, changing technology, internet revolution and continually changing environment, their deep experience and proven academic excellence adds to the vision they have foreseen for this college. With the objectives of developing outstanding professionals with character, the management adds their contribution to the cause of higher education in Kerala.

**Chairman, Prof. K. Sasikumar** is a dynamic leader, under whose guidance the college gains exponential growth. He focuses on providing innovative methods of teaching in accordance with the developments in the academic world. He is the founder Secretary of the prestigious Sree Narayana Public School, Kollam, Sree Narayana Institute of Ayurvedic Studies & Research and Sree Narayana Institute of Technology. He is also the Chairman of Sree Buddha Central School, Karunagappally. Prof. K. Sasikumar is a member of many academic bodies. He was also the Principal of the reputed Sree Narayana College, Kollam.

**Secretary, Dr. K B Manoj** is the Principal of an aided College. Currently, he is a member of the Syndicate of the University of Kerala.

The Treasurer of SBCE, **Sri. K.K. Sivadasan** is a proven financial expert, who formerly was the Br. Manager of a Nationalised Bank.

in Sister Institutions of this college are :

- (a) Sree Buddha College of Engineering for Women, Elavumthitta
- (b) Sree Buddha Central School, Karunagappally
- (c) Sree Buddha Central School, Pattoor

All the members of the management are associated with the above said institutions for more than two decads. Such a team of office bearers with academic expertise, experience and social commitment steers the College and aims to elevate this Institution to a Centre of Excellence of International reputation.

### **Management Scholarship**

The management of the Sree Buddha Educational Society is committed to provide Quality Education. With this as the motto, the management is giving merit - cum - means scholarship to meritorious students of all Branches, It is also giving Free Eduaction to economically weaker and meritorious students.

#### **1.2 Members of Managing Committee:**

- 1. Chairman : Prof. K. Sasikumar
- 2. Vice Chairman : Dr. M. Asokan
- 3. Secretary : Dr. K B Manoj
- 4. Joint Secretary : Sri. K N Muraleedharn
- 5. Treasurer : Sri. K.K. Sivadasan

### **1.3 Members of the Executive Committee :**

- Prof. V Prasad
- Sri. G Yatheesh
- Sri. G Venugopal
- Sri. S M Venkita Narayanan Reddiar
- Smt. Indira Vipin
- Dr. Raveendran G
- Sri. T V Rajan
- Dr. Raji Raveendran
- Sri. R Ravi
- Sri. A C Vijayachandran
- Sri. G Suseelan
- Sri. G Sundaresan
- Sri. A Sunil Kumar
- Sri. K Raveendran
- Sri. R Uthaman
- Sri. M Jayamon
- Sri. V Dharmarajan
- Sri. M B Sasidharan
- Sri. D Rajkumar
- Sri. K K Sunil Kumar
- Sri. Mohanlal
  
- Sri. C I Mathew

### **1.4. The Principal : Dr. S Suresh Babu**

Dr. S Suresh Babu received his B.Tech degree in Electronics & Communication Engineering from University of Kerala in 1982, M Tech in Computer Science & Technology from IIT Roorkee in 1988

and PhD in IT enabled services from PSG College of Technology in 1997. He has served as Principal to College of Engineering, Chengannur, College of Engineering, Munnar, T K M Institute of Technology, Kollam and T K M College of Engineering, Kollam. His research interests are in IT Enabled Services, Image Processing, and Mobile & Ad-hoc Networks. He is a reviewer and Editorial Board member of many international journals/conferences. He has got a number of publications in various peer reviewed journals of international repute. Dr. S Suresh Babu was a member of Board of Studies (PG) & Faculty of Engineering at Cochin University of Science & Technology (CUSAT). He is also a member of PG Board of Studies in Engineering at University of Kerala and M G University. Currently Dr. Suresh Babu is a member of the Academic Committee responsible for the development of curriculum and syllabus for Undergraduates and Post graduates programs of the Kerala Technological University. He acted as Chairman, M Tech Board of Examinations of University of Kerala, CUSAT and University of Calicut. He was a member of the Standing Appellate Committee (SAC) of the All India Council of Technical Education (AICTE), New Delhi. Dr S Suresh Babu is a member of Indian Society of Technical Education (ISTE), Computer Society of India (CSI), Quilon Management Association (QMA), Institute of Electrical Electronics Engineers (IEEE), Solar Energy Society of India and Melvin Jose Fellow (MJF) of the Lions Club International. He is a Director of an IT Company at Technopark, Thiruvananthapuram; Cadmium Technologies (P) Limited and also a Research Supervisor to Noorul Islam University & Karpagam University, Tamil Nadu.

### **1.5. E.K.Bhass, is the Dean (PG)**

He has more than 45 years of experience in Education, Industry, Administration and Research. He has served as Professor of Civil Engg., Professor of Computer Science and also as Professor of Computer Applications before becoming Principal. He was one of the chief investigators of the Western Ghat Development Programme of the Ministry of Environment, Govt. of India. He was also the Chairman of a team constituted for accrediting Computer Training Institutes of Kerala, set up by the Department of Electronics, Govt. of India. He was a member of the Board of studies in Computer Science of the University of Kerala. His current research interests are in Sustainable Development and Alternate and reusable materials.

### **1.6. Faculty**



The backbone of any academic institution is the teaching faculty. As such all the members of have been drawn from those having academic expertise in the discipline concerned. All the teachers are qualified as per the AICTE norms and many of them possess PG / Ph.D degrees.

## **2. Approval Details:**

The Sree Buddha College of Engineering, Pattoor - 690 529 has been accorded approval by All india Council for Technical Education (AICTE), New Delhi for conducting B.Tech. and M.Tech courses under APJ Abdul Kalam Teechnological University. In six branches of study

### **B.Tech**

- Biotechnology & Biochemical Engg. (Equivalent to B.Tech Chemical Engg.) †
- Civil Engg.
- Computer Science & Engg.
- Electronics & Communication Engg.
- Electrical & Electronics Engg.
- Mechanical Engg.(2 batches)

### **M.Tech**

'M.Tech Electronics - Embedded Systems

M.Tech Biotechnology - Biotechnology and Biochemical Engineering

M.Tech Computer Science - Computer Science & Engg.

Mechanical Engg. - Computer Integrated Manufacturing

M.Tech Civil Engg. - Structural Engg.

M.Tech Electrical & Electronics -Electrical Machines

### **3. Location and Accessibility :**

**By Road:** The college is well connected with N.H 47 and S.H 1(M.C Road) from Kayamkulam and Pandalam respectively. The SBCE campus is at Pattoor located between Edappon (pandalam-Mavelikkara road) and Nooranad (Kayamkulam-Adoor Road). Pandalam town is about 7 km; Mavelikkara and Adoor are about 15 km from SBCE campus.

**By Rail:** The nearest railway stations are Kayamkulam Jn and Mavelikkara, at a distance of 20 and 15 km respectively from the college.

**By Air:** Nearest airport is Thiruvananthapuram, about 100 km south of the college, and Kochi airport is 120 km North.

### **4. The Campus :**

The SBCE Campus is a gifted one, situated in a site blessed by nature and developed by man in an area of more than 137.7 acres located in an enchanting panoramic site. The College faces a vast expansive lagoon adjoining Achankovil River with fresh breeze flowing continuously, making the campus bewitching and conducive to serious academic pursuit. It leaves in the young minds of the students a refreshing and everlasting imprint. It is planned to make the campus a residential one, suitable to fetch recognition as a Deemed University. The total plinth area is around 28380 m<sup>2</sup> with aesthetically designed classrooms and laboratories. It also houses other infrastructural facilities like Workshops, Hostels, Canteen, Quarters etc. Work on water supply, Electrical substation, Electronic telephone exchange etc. Total capital outlay is more than 35 crores rupees.

The college has separate hostels for men and women in the campus. In addition to lecture theatres, a seminar hall of 250-seating capacity is also available for conducting seminars at state and national levels. Another luxurious Auditorium with seating capacity of 1200 has become fully operational. Facilities for all indoor / outdoor sports and games are available in the campus.

### **5. Departments & Courses**

The courses are as per the scheme and syllabus of APJ Abdul Kalam Technological University. The syllabus is revised every 5 years as per the advancements made world over and as per the needs of Industries, R & D organisations and the society.

The Courses offered are given in the section 5.1. The detailed syllabus Will be distributed to students through the College Store.

## **5.1 Undergraduate Programmes and Post Graduates Programmes**

Regular — B.Tech. 4 Years (8 Semesters)

- B.Tech Biotechnology & Biochemical Engineering
- B.Tech Computer Science and Engineering
- B.Tech Electronics and Communication Engineering
- B.Tech Electrical & Electronics Engineering
- B.Tech Mechanical Engineering (2 Batches)
- B.Tech Civil Engineering

### **Postgraduate Programmes**

- M.Tech Electronics - Embedded System
- M.Tech Computer Science & Engg.
- M.Tech Mechanical Engg. - Computer Integrated Manufacturing
- M.Tech Biotechnology - Biotechnology and Biochemical Engineering
- M.Tech Civil Engg. - Structural Engg.
- M.Tech Electrical & Electronics -Electrical Machine

#### **5.1.1. Department of Biotechnology and Biochemical Engineering**

Biotechnology is a branch of science involving biology and engineering going parallel in the enhancement of technology. The department of biotechnology has faculty with extensive industrial &

research experience and proven track record, imparting in-depth training to the students in the emerging fields of Biotechnology.

**VISION:** To nurture research oriented Biotechnology and Biochemical Engineers to address social needs

**MISSION:**

- Provide quality education in Biotechnology and Biochemical Engineering
- Inculcate research culture with social commitment
- Instill passion for lifelong learning for sustainable development

**Program Educational Objectives (PEO's)**

The graduates will

- Be able to design, develop and provide solutions for products and processes in Biotechnology and Biochemical Engineering and allied fields through quality education.
- Be able to address challenges in industrial and research areas with socio-ethical responsibilities.
- Have strong foundation in Biotechnology and Biochemical Engineering to pursue higher education and research

**Program Specific Outcomes (PSO's)**

- **Design and develop solutions to environmental and biochemical industrial problems.**
- **Inculcate entrepreneurial skills to explore the possibilities in Biotechnology with social outlook**

1. The department also includes a full-fledged R&D section. Our areas of research include.

- Biomolecules and therapeutics
- Waste Management
- Biotechnology and natural resources

- Bioenergy
- Secondary metabolites and intermediaries
- Fermentation technology

Students are sent to research laboratories like Rajiv Gandhi Centre for Biotechnology, NIST, RCC, NMS etc to name a few and various process plants to get a taste of real life condition and hands on experience in the chosen field. In-plant training is a must and part of curriculum. We provide, well equipped laboratories in the department which includes

- Biochemistry lab
- Microbiology lab
- Enzyme Engineering lab
- Molecular Biology lab
- Bioprocess Engineering lab
- Instrumental Methods of Analysis Lab
- Fluid Mechanics lab
- Heat and Mass Transfer lab
- Process Control and Reaction Engineering lab
- Animal Tissue Culture lab
- Downstream processing lab
- Centre for Bio technology & Nano technology
- Bioinformatics Lab
- Software Lab

### **5.1.2 Centre for Biotechnology and Nanotechnology**

A centre for Biotechnology & Nanotechnology with the state of the art facilities has become fully operational. The centre has research collaborations with government and private sector and has signed an MOU with Oushadhi, Thrissur for carrying out research in the field of ayurvedic formulations. The centre has international research collaborations with University sains Malaysia, penang and signed an MOU for student exchange program.

The Centre is equipped with latest equipment and instruments like

1. PCR, Gradient PCR
2. Western Blotting
3. Advanced Bio FIO Fermentor
4. Gel Documentation
5. Phase Contrast Microscope with Trinocular
6. Deep Freezing with Cooling
7. UV/VIS Spectrophotometer
8. UV- Illuminator
9. Digital pH Meter
10. Digital Colony Counter
11. Column Chromatography
12. Incubators
13. Gel Documentation System
14. Trinocular Research Microscope with Phase Contrast & Magnified Imaging System (inverted)
15. BOD Incubator
16. Muffle Furnace

17. Digital Photo Electric Colorimeter

18. HPLC unit

The faculty members:

| <b>Name</b>             | <b>Designation</b>        | <b>Specialization</b>                        |
|-------------------------|---------------------------|--|
| Dr. Anoop Raj J R       | Associate Professor & HOD | Bioremediation                               |
| Dr. Manoj Narayanan     | Associate Professor       | Biotechnology                                |
| Dr. Malu Ravi           | Associate Professor       | Molecular Biology                            |
| Ms. Meerabai.S          | Assistant Professor       | Biotechnology &<br>Biochemical Engineering   |
| Ms. Shamnamol G. K      | Assistant Professor       | Chemical Plant Design                        |
| Ms. Lekshmi R Babu      | Assistant Professor       | Biotechnology                                |
| Ms. Anju Raj            | Assistant Professor       | Process Control                              |
|                         | Assistant Professor       |  |
| Ms. Rincy Susan Raju    |                           | Molecular Biology and<br>Genetic Engineering |
| Dr. Jaya Mary Jacob     | Assistant Professor       | Chemical Engineering                         |
| Ms. Prarthana Prabudhan | Assistant Professor       | Biotechnology                                |
| Ms. Veena G             | Assistant Professor       | Biotechnology and<br>Biochemical             |

### **5.1.2 Department of Electronics and Communication Engineering**

This branch is highly competitive and promises immense possibilities in the expanding field of electronics. Teamed with excellent infrastructure and competent faculty, this department has proved to be unsurpassed. Curriculum includes subjects with wide application in industries such as Digital Signal processing, VLSI, Image processing, Radar Engg.. Embedded System etc. Besides regular classes and lab sessions, the department conducts seminars, workshop, training programmes etc. on

the emerging trends in related fields. The department offers excellent lab facilities with the latest equipments.

**VISION:** To nurture professionally competent and socially responsible Electronics and Communication Engineers.

**MISSION:**

- Provide knowledge, facilities and value based education for developing competent engineers.
- Promote industry-institute interaction, lifelong learning and research.
- Inculcate ethical and interpersonal skills to address the societal needs.

**Programme Educational Objectives (PEOs)**

The programme will

- Mould graduates capable of analyzing, formulating and solving problems in electronics and communication sectors.
- Promote lifelong learning, research and entrepreneurship for professional development of graduates.
- Motivate graduates to address societal needs through sustainable and ethical practices.

**Programme Specific Outcomes (PSOs)**

The graduate will be able to

- Apply modern design tools for effective product development.
- Develop solutions for various environmental, health and safety issues.

The labs associated with the department are

- Electronic Circuits Lab
- Digital Electronics Lab
- Integrated Circuits Lab



- Microprocessor Lab
- Industrial Electronic Lab
- Advanced Communication Lab
- Embedded Systems Lab
- Programming & Simulation Lab- with facilities such as LabVIEW, Matlab, Multisim ultiboard, Edwin XP, Xilinx ISE and CC Studio.
- The research lab of the department comprises the EDA tools like Design architect, IC station, IC - Calibre XRC, Analog mixed signal ELDO SPICE, ADMS, Model Sim, Leo Spec L3 ASIC, Xilinx X System generator etc. This lab also includes FPGA and DSP development boards such as spartan 3 vertex5, spartan 6 FPGA & TMS 320C 6713 DSP processor.

The faculty members:

| <b>Name</b>        | <b>Designation</b>       | <b>Specialization</b>                  |
|--------------------|--------------------------|--|
| Ms. Ambika Shekar  | Assistant Professor /HOD | Microwave and television               |
| Ms. RagiMol        | Assistant Professor      | Embedded systems                       |
| Ms. Pavitha P P    | Assistant Professor      | Electronics                            |
| Ms. Saritha N R    | Assistant Professor      | Applied electronics                    |
| Mr. Jayaraj V S    | Assistant Professor      | Communication Systems                  |
| Ms. Jasmin Basheer | Assistant Professor      | Industrial instrumentation and Control |
| Mr. Sabi S         | Assistant Professor      | Microwave and television               |
| Mr. Vishnu V S     | Assistant Professor      | Control an Instrumentation             |
| Mr. Alex V         | Assistant Professor      | Mechatronics Engineering               |

|                   |                     |  |
|-------------------|---------------------|--|
| Ms. Manjusree S   | Assistant Professor | Applied Electronics                        |
| Ms. Pooja S Mohan | Assistant Professor | Opto Electronics and communication Systems |
| Ms. Anu V S       | Assistant Professor | Communication engineering                  |
| Ms. Athira Shaji  | Assistant Professor | Embedded Systems                           |
| Mr. Arun C S      | Assistant Professor | VLSI and Embedded Systems                  |

### **5.1.3 Department of Computer Science and Engineering**

In the era of information technology, this branch has a great significance. The course is designed to equip the students with a solid and thorough understanding of the fundamentals and core subjects of computer engineering. In addition to the regular curriculum the students are given elective options in Artificial Intelligence & Expert System, Neural Computing, Cryptography and Network Security, Digital Image Processing, Natural Language Processing, Data Mining, Multimedia and Data Compression, Neural Computing etc. The department also provides training programme on computer assembling and networking.

**VISION:** To create competent computer engineers with social commitment

**MISSION:**

- Provide student- centric learning environment to create competent Computer Engineers
- Instigate research, innovation and entrepreneurship initiatives  
Impart skills and creative thinking ability to promote lifelong learning.

#### **Program Educational Objectives (PEO's)**

The graduates will:

- Have strong foundation in computer science and engineering to excel in diverse career paths

- Imbibe professional attitude, ethics, interpersonal and entrepreneurial skills
- Be adaptable to rapidly changing technological advancements through lifelong learning and research

### **Program Specific Outcomes (PSOs)**

Computer Engineering graduates will be able to:

**PSO1.** Apply standard practices in software project development using the open source environment to deliver a quality product.

**PSO2.** Analyze and develop computer programs using modern programming languages

The labs associated with the department are,

- Advanced and spacious System Lab with LAN, equipped with sufficient number of advanced terminals and a collection of licensed softwares
- High speed Internet labs
- Programming Lab
- Operating System & Network lab
- Computer Hardware and Interfacing Lab
- Application Software Development Lab
- Project lab
- Database lab

To enhance the career opportunities, we conduct internationally certified training programmes in association with reputed training centres. Above all, a group of disciplined, dedicated and hardworking staff support and guide the students in all areas of interest.

The faculty members:

| <b>Name</b>              | <b>Designation</b>      | <b>Specialization</b>                   |
|--------------------------|-------------------------|---|
| Dr. S Suresh Babu        | Professor/Principal     | IT Enabled Services                     |
| Mr. Anil A R             | Associate Professor/HOD | Digital Image Computing                 |
| Dr. A Jagadheeshan       | Associate Professor     | Security in MAMET                       |
| Ms. Reeba R              | Assistant Professor     | Computer and information<br>Technology  |
| Ms. Minu Lalitha Madhavu | Assistant Professor     | Technology Management                   |
| Ms. Dhanya Sreedharan    | Assistant Professor     | Computer and information<br>Technology  |
| Ms. Soumya Murali        | Assistant Professor     | Computer Science &<br>Engineering       |
| Mr.Gopu Darsan           | Assistant Professor     | Computer Vision and Image<br>Processing |
| Ms. Lakshmi S            | Assistant Professor     | Technology Management                   |
| Mr. Arun P S             | Assistant Professor     | Computer and information<br>Technology  |
| Ms.Reshmi S              | Assistant Professor     | Computer Science and<br>Engineering     |
| Ms. Neenu Wilson         | Assistant Professor     | Computer Science &<br>Engineering       |
| Ms.Keerthi A S Pillai    | Assistant Professor     | Digital Image Computing                 |

#### **5.1.4 Department of Mechanical Engineering**

Mechanical engineering is a broad field of engineering that involves the application of physical principles for analysis, design, manufacturing, and maintenance of mechanical systems. The system can be as simple as the design of a chair for comfort or as complex as the operations of a turbocharged engine for speed. It can be as small as the manufacturing of a nano-sized gear or as large as the structure of a supertanker used to carry oil around the world. The department has a rare blend of dynamic youngsters guided by a group of eminent and experienced professors.

The curriculum is framed so as to make the students proficient in the use of computers for solving problems in Mechanical Engineering by using the state-of-the art computer packages. The laboratories and the workshops in this department give ample opportunities to the students of Mechanical Engineering to gain practical knowledge and hands on experience.

**VISION:** To groom professionally competent Mechanical Engineers with social commitment.

**MISSION:**

- Create an environment that encourages students to become competent Mechanical Engineers.
- Promote lifelong learning, entrepreneurship and research.
- Inculcate human values and leadership qualities for holistic development of students

#### **Program Educational Objectives (PEO's)**

**The graduates will**

- Be professionally competent to work in theoretical and practical domains of Mechanical Engineering
- Become effective innovators and researchers to address social, economic and engineering challenges
- Have leadership qualities and human values for the holistic development of the society

**PROGRAM SPECIFIC OUTCOMES (PSOs)**

Mechanical Engineering graduates will be able to:

**PSO1.**Apply principles of engineering, basic science, and mathematics to model, analyze and design mechanical systems, components and processes.

**PSO2.**Have proficiency in materials and manufacturing processes to design, analyze and develop products that meet specific requirements.

**PSO3.**Work professionally in thermal, manufacturing and other mechanical systems

The labs associated with the department are

- Engineering Workshop
- Fluid Mechanics and Machines Lab
- IC Engine Lab
- Machine Shop
- CAD Lab
- Thermal Engineering Lab
- Mechanical Engineering Lab
- Computer Lab

The faculty members:

| <b>Name</b>        | <b>Designation</b>      | <b>Specialization</b>                                 |
|--------------------|-------------------------|---|
| Mr. ANILKUMAR A V  | Associate Professor/HOD | INDUSTRIAL<br>REFRIGERATION AND                       |
| Dr. Saji Vargheese | Professor               | CRYOGENIC ENGINEERING<br>MANUFACTURING<br>ENGINEERING |

|                       |                     |   |
|-----------------------|---------------------|---|
| Dr. Senthil Saravana  | Professor           | THERMAL ENGINEERING                                       |
| Dr. TRIJO THARAYIL    | Associate Professor | THERMAL ENGINEERING                                       |
| Dr. SREEJITH MOHAN    | Associate Professor | MACHINE DESIGN  |
| Dr. J B Sajin         | Associate Professor | MANUFACTURING<br>ENGINEERING                              |
| Ms. VIDYA V           | Assistant Professor | MECHATRONICS  |
| Mr. VENUGOPAL N       | Assistant Professor | INDUSTRIAL<br>REFRIGERATION AND<br>CRYOGENIC ENGINEERING  |
| Mr. Sreejith P        | Assistant Professor | INDUSTRIAL<br>REFRIGERATION AND<br>CRYOGENIC ENGINEERING  |
| Mr. KIRAN SHANKAR M S | Assistant Professor | ENGINEERING DESIGN  |
| Mr. SREEKUMAR E N     | Assistant Professor | INDUSTRIAL<br>REFRIGERATION AND<br>CRYOGENIC ENGINEERING  |
| Mr. ASWIN MOHAN       | Assistant Professor | INDUSTRIAL<br>REFRIGERATION AND<br>CRYOGENIC ENGINEERING. |
| Mr. KALESH K K        | Assistant Professor | PRODUCTION<br>ENGINEERING                                 |
| Mr. RENJITH RAJ R     | Assistant Professor | Mr. RENJITH RAJ R   |
| Mr. AKHIL K V         | Assistant Professor | IC ENGINES AND TURBO<br>MACHINERY                         |

|                       |                     |   |
|-----------------------|---------------------|---|
| Mr. AMJITH T R        | Assistant Professor | ADVANCED<br>MANUFACTURING &<br>MECHANICAL SYSTEMS<br>DESIGN |
| Mr. ARUN M            | Assistant Professor | ADVANCED<br>MANUFACTURING &<br>MECHANICAL SYSTEMS<br>DESIGN |
| Mr. RATHEESH R        | Assistant Professor | INDUSTRIAL ENGINEERING<br>AND MANAGEMENT                    |
| Mr. VAISAKH P S       | Assistant Professor | PRODUCTION AND<br>INDUSTRIAL ENGINEERING                    |
| Mr. Pradeep Kumar P K | Assistant Professor | CIM   |
| Mr. JINAN.S           | Assistant Professor | INDUSTRIAL<br>REFRIGERATION AND<br>CRYOGENIC ENGINEERING.   |
| Mr. GOKUL O           | Assistant Professor | CAD CAM   |
| Mr. HARI KRISHNAN G   | Assistant Professor | MACHINE DESIGN  |
| Ms. KALPANA ASHOKAN   | Assistant Professor | IC ENGINES AND TURBO<br>MACHINERY                           |
| Mr. MADHAV K          | Assistant Professor | PRODUCTION AND<br>INDUSTRIAL ENGINEERING                    |
| Mr. RAHUL M           | Assistant Professor | COMPUTER INTEGRATED<br>MANUFACTURING                        |



|                  |                     |                                      |
|------------------|---------------------|--------------------------------------|
| Mr. ANWAR RAJEEV | Assistant Professor | COMPUTER INTEGRATED<br>MANUFACTURING |
| Mr. S SREEKUMAR  | Assistant Professor | MECHANICAL<br>ENGINEERING            |

### **5.1.5 Department of Electrical and Electronics Engineering**

The course includes essential aspects of electric power generation, transmission, distribution & utilisation, measurement systems, electrical machines, control systems, electronic devices, power electronics, software Engineering etc. Technologies in high voltage engineering, Digital signal processing is also emphasised.

Electrical & Electronics Engineers are employed in a verity of enterprising careers such as maintenance engineers in power system, design engineers in the manufacture of Electronic equipment etc.

**VISION:** To create skilful Electrical & Electronics engineers with societal commitment

**MISSION:**

- Create professionally qualified Electrical & Electronics engineers by imparting necessary knowledge and relevant skills.
- Encourage students to inculcate a culture of lifelong learning necessary for jobs or higher studies.
- Induce human values and social commitment to meet societal needs.

### **Program Educational Objectives (PEO's)**

**The graduates will**

- Gain adequate technical knowledge in Electrical and Electronics engineering to pursue careers in industries and academics
- Pursue lifelong learning to accomplish professional and personal excellence
- Be moulded with ethical values, catering to the societal needs

### **Program Specific Outcomes (PSO's)**

Electrical & Electronics Engineering graduates will be able to:

**PSO1.** Design electrical systems in conformity with industrial practices.

**PSO2.** Use modern hardware and software platforms to design, analyze and implement electrical and electronic systems.

The laboratories are well equipped and also have adequate infrastructure. Presently the department has the following laboratory facilities with latest equipments.

- Electrical & Electronics Workshop
- Electrical Machines Laboratory
- Measurements & Instrumentation Laboratory
- Electronic Circuits Laboratory
- Power Electronics Lab
- System & Control Lab
- Microprocessor and software Lab
- PG Research Lab

The faculty members:

| <b>Name</b>   | <b>Designation</b> | <b>Specialization</b> |
|---------------|--------------------|-----------------------|
| Mr. Vinod V P | HoD                | Power Systems         |

|                             |                     |                                   |
|-----------------------------|---------------------|-----------------------------------|
| Dr. Mithun M S              | Associate Professor | Electrical & instrumentation      |
| Mrs. Sindhu V               | Assistant Professor | Power Electronics                 |
| Mr. Sheleel F               | Assistant Professor | Power Electronics                 |
| Mrs. Abhilasha Parthan      | Assistant Professor | Industrial Drives & Control       |
| Mrs. Juna John Daniel       | Assistant Professor | Power Electronics & Drives        |
| Mr. Nandan G                | Assistant Professor | Power Systems                     |
| Mr Sreekanth P K            | Assistant Professor | Power Systems                     |
| Ms. Gayathri Vijayachandran | Assistant Professor | Power Electronics & Power Systems |
| Ms. Vijina K                | Assistant Professor | Industrial Drives & Control       |
| Mr. Ananthu Vijayakumar     | Assistant Professor | Power Electronics & Power Systems |
| Ms.Reema N                  | Assistant Professor | Electrical Machines               |
| Mr.Vishnu J                 | Assistant Professor | Power Systems                     |
| Ms. Chama R Chandran        | Assistant Professor | Power Electronics and Drives      |

### **5.1.6 Department of Civil Engineering**

Civil Engineering is a branch of engineering deals with analysis, design and construction of infrastructure development of our country like tall buildings, highways, railways, bridges, dams, canals, hydraulic structures, sanitary and water supply systems etc. This branch started in 2008-2009 academics year.

**Vision:** To breed professionally competent Civil Engineers for a sustainable society

**Mission:**

- Provide theoretical, practical and industry knowledge in Civil Engineering
- Encourage students for higher studies, lifelong learning and research
- Motivate students to apply knowledge and expertise for the development of a sustainable society.

**Program Educational Objectives (PEO's)**

The graduates will:

- **PEO1** : Have the attributes to pursue successful employment in Civil Engineering
- **PEO2** : Be inspired to perceive latest technologies and opportunities relating to Civil Engineering
- **PEO3** : Be empowered to devise sustainable solutions to real life problems

**Program Specific Objectives (PSO's)**

Civil Engineering graduates will be able to:

**PSO1:** Design , develop and maintain sustainable solutions for problems in Civil engineering using state of the art technologies and in conformity with ethical standards..

**PSO2:** Explore newer trends and employment opportunities in civil engineering through methodical exposure to industry and experts

The following laboratories are already established in well-equipped condition with most modern facilities.

- Surveying Laboratory
- Strength of Materials Laboratory
- Concrete lab

- Transportation engineering Lab
- CAD Lab
- Geotechnical Engineering Lab
- Drawing Hall
- Environmental engineering Lab
- Geology Lab
- PG Research Lab

Faculty members:

| <b>Name</b>           | <b>Designations</b> | <b>Specialization</b>                    |
|-----------------------|---------------------|--|
| Dr. E.K.Bhass         | Professor & HOD     | Hydraulics Engineering                   |
| Dr. E V Namboothiri   | Professor           | Structural Engineering                   |
| Dr. Gouri antherjanam | Professor           | Geotechnical Engineering                 |
| Dr. Gopakumar R       | Professor           | Water Recourse Engineering               |
| Mr. Ashok Mathew      | Assistant Professor | Structural Engineering                   |
| Mr. Unnikrishnan S    | Assistant Professor | Construction Engineering & Management    |
| Ms. Regi P Mohan      | Assistant Professor | Environmental<br>Geotechnology           |
| Ms. Indu V.S.         | Assistant Professor | Computer Aided Structural<br>Engineering |
| Ms. Aswathy Lal B.    | Assistant Professor | Traffic & Transportation<br>Engineering  |

|                             |                     |                                       |
|-----------------------------|---------------------|---------------------------------------|
| Ms. Shobha Elizabeth Thomas | Assistant Professor | Structural Engineering                |
| Mr. Pradeep P               | Assistant Professor | Habitat Technology                    |
| Mr. Renjith R               | Assistant Professor | Computer Aided Structural Engineering |
| Ms. Cinaya Tony             | Assistant Professor | Hydraulics Engineering                |
| Ms. Ritzy R                 | Assistant Professor | Structural Engineering                |
| Ms. Jency James             | Assistant Professor | Environmental Engineering             |
| Ms. Meera G Mohan           | Assistant Professor | Hydraulics Engineering                |
| Ms. Namitha Chandran        | Assistant Professor | Structural Engineering                |

### **5.1.7 Department of Mathematics and Basic Sciences**

This department comprises of subject experts in Mathematics, Chemistry and Physics. These are the most important basic requisites the students should acquire for further intellectual and technological growth.

#### **VISION**

To strengthen the scientific skills of the students to acquire further intellectual and technological growth.

#### **MISSION**

Creating a generation of skillful human beings

Faculty:

| <b>Name</b>      | <b>Designation</b> | <b>Specialization</b> |
|------------------|--------------------|-----------------------|
| Prof. K. Vijayan | Professor/HoD      | Mathematics           |

|                    |                     |                   |
|--------------------|---------------------|-------------------|
| Mr. Somanadhan A R | Assistant Professor | PE                |
| Ms. Raji Sankar    | Assistant Professor | Chemistry         |
| Ms. Anju. B. I     | Assistant Professor | Physics           |
| Ms. Rakhi Rajeev   | Assistant Professor | Mathematics       |
| Ms. Divya Suresh   | Assistant Professor | Mathematics       |
| Ms. Asha.S         | Assistant Professor | Mathematics       |
| Ms. Asha V         | Assistant Professor | Polymer Chemistry |
| Ms. Priya R        | Assistant Professor | Mathematics       |
| Ms. Shama S        | Assistant Professor | Physics           |
| Ms.Praveena P M    | Assistant Professor | Mathematics       |
| Ms Jisha S         | Assistant Professor | Mathematics       |

The following departments give support and assistance to the major departments in areas of basic engineering especially for the first year students. Their experience and knowledge are extensively used by the budding professionals during their projects in the higher semesters.

### **HRM Department**

| <b>Name</b>         | <b>Designation</b>  |
|---------------------|---------------------|
| Prof. Thomas Mathew | HOD-HR              |
| Mr. Pradeep kumar   | Assistant Professor |

## **6. Infrastructure**

### **6.1. Audio-Visual Facilities**

Audio - Visual gadgets like LCD Projector, OHP Projectors, Language laboratory etc. adds

fervour to the learning process and development of communication skill of students. The internet facilities, photocopier etc. are some of the additional facilities available. The College has its own website [www.sbce.ac.in](http://www.sbce.ac.in) and students can update the information on this site by adding new facilities and events.

#### **6.1.1 Language Laboratory:**

Language skills in today's world have assumed a significant role in one's academic and professional career. The present technical curriculum does not lay a great stress on improving communication skills in English. To achieve this objective, a state-of-the-art language lab has been set up in the institution. It includes cassettes and CDs aimed at improving oral and written communication skills. Sessions like group discussions, debates, mock interviews and general awareness talks are conducted thereby ensuring effective communication, interpretation and adaptation skills.

#### **6.1.2 Internet and Digital Laboratory**

All students and faculty members can utilise the computer facilities. The computer laboratory is branched into two. The lab is well equipped with dedicated servers with server management programmes. About 30 plus nodes/terminals are provided in the ground floor and about 60 plus nodes/terminals are provided on the first floor. Internet and intranet facilities are available. The accounts, administration and student records are computerised. The data on student performance is available on the website and can be accessed by parents. The lab includes audio/video cassettes, CDROM discs, textbooks, and all necessary compilers of programming languages (licensed version) are used. The lab is also equipped with latest printers, scanners, CD/DVD writers, Windows - NT servers, multimedia systems, multi media projectors etc. A leased internet connection of 4Mbps is available in the college through a network of 100 computers.

### **Supporting staff**

Mr. Vishnu R.

System Administrator (MCA, CCNA, MCFA)



|                        |                              |
|------------------------|------------------------------|
| Mr. Unnikrishnan       | Computer Hardware Technician |
| Mr. Sajeev Kumar. K.R. | Lab Assistant                |
| Mr.Gopakumar           | Computer Hardware Technician |

### **Central Library Facilities**

The Central Library caters to the information needs of the faculty , students and other staff of the institute . it is housed in a three storied new building located at the north side of the main campus. The total area of the library building is about 1500 sq .m. It has more than 30,000 books , and around 1600 CD Roms covering all disciplines of engineering , science and technology , humanities and generat books. The central library Currently subscribes to around 135 scholarly journals, and 70 technical Magazines in print form. Library provides a large reading room which can accomodate a total of 600 students at a time. The reference section of the library is fully air conditioned and provide peaceful environment for study. The digital library has a capacity to accomodate 40 users. More than 5000 international online journals, e-books, standards, in different areas subscribing through different consortium, ELSEVIER, IEEE, Springer, ACCESS ENGINEERING Library, ASTM Digital Library, ASCE, ASME, j - gate, ISO JTC | and NPTEL. The Central library has automated all its routine activities through library software and also extended the scope of various services like CD - ROM database search , OPAC and web OPAC.

The Libarary also has a seperate internet section (net lab) consisting of a number of network terminals for providing recent and most comprehensive access to e- journals and other e - reference resources to the faculty , students and staff under Interest environment. This is located on the second floor of the library. The facilities at the library include a fully air conditioned conference hall.

### **Library Services**

- Reference
- Document lending Service
- E-document lending service
- News Clipping

- New arrival
- Reprography
- Online Printout
- Digital Library
- OPAC
- User Education

**Library Timings :**

Monday to Friday ( On working days) - 8.00 am to 8.00 pm

Saturday - 9.00 am to 6.00 pm Circulation Timings ( Issue / Return) - 8.30 am to 6.00 pm (Monday - Friday)

**MEMBERSHIP :**

Filled in application in prescribed form duly forwarded by the staff advisor of the respective departments along with College ID Card shall be submitted to the Library.

1. Identity card is compulsory for entering the library and books will be issued only against the borrower's ticket. It should be produced as and when demanded by any of the library staff.
2. Personal belongings can be kept in racks on the ground floor, however they may carry loose papers or a single notebook.
3. Enter your name and sign in the register kept at the entrance counter before entering library.
4. Silence to be maintained.
5. No discussion permitted inside the library
6. Using cellular phones and audio instruments with or without speaker or headphone is strictly prohibited in the library premises.

7. Improper use of library facilities by a member will lead to the suspension/ termination of his/ her membership.
8. No document issued brought to the library unless for returning.
9. Students are instructed to check the books while borrowing and they will be responsible for any type of damage or mutilation noticed at the time of return.
10. No person permitted to use the library shall mutilate, disfigure, deface by writing in the margins, by underlining sentences, by marking passages or by damaging in any other way a book, periodical, or any other property of the library.
11. In case a book is mutilated or lost, then the borrower shall replace the books of the same edition or latest edition or pay double cost of the book after getting permission from the librarian.
12. Library borrower cards are not transferable. The borrower is responsible for the books borrowed on his / her card.
13. Loss of borrower card should be reported to the librarian in writing. After checking the borrowing register they will be issued a fresh replacement card on a payment of Rs. per card.
14. Reference material should not be taken outside the Library.
15. Photocopying services shall be available for the Library materials against payment. Users are responsible for complying with copyright act while photocopying library documents.
16. Books will be issued to the students for 14 days only. In the last page slip is pasted and stamped mentioning the due date and the fine will be charged 50 paisa per day per book from the due date till the book is returned to library. Members must collect receipt for the payment made against late fine from the library.
17. Each student shall obtain No dues certificate from the library after returning all the books issued, surrendering the borrower's cards and after paying outstanding dues, if any.
18. Refreshment of any kind shall not be taken anywhere in the library premise,
19. Privileges of members in respect of borrowing documents are given below :

| Borrowers          | No.of Books | Loan Period |
|--------------------|-------------|-------------|
| Academic staff     | 15          | 1 semester  |
| Non academic staff | 4           | 1 month     |
| B.Tech Students    | 5           | 14 days     |
| M. Tech Students   | 10          | 14 days     |

20. Rules for the use of digital library must be followed. Browsing occasionally restricted to E-book, online journals & NPTEL Video Courses. Other website are also available with the permission of the librarian.

21. SBCE Central Library follows an Open - Access system.

### **6.3 College Hostel**

SBCE provides residential facilities with homely atmosphere for the students. Hostels for Men and Women are provided in Separate campuses with adequate facilities. Vegetarian foods prepared in hygienic conditions are made available to the students. The stay in the hostel enables them to imbibe a different life style and involve in activities including yoga, meditation, sports, music etc. suiting individual tastes and preferences. Students learn to take care of their personal needs and grow in a conducive environment.

Students desiring to stay in Hostel have to make a deposit of Rs. 10,000/- against mess fee and other charges. The students fix the menu and the monthly mess expenses are divided amongst the students.

The Principal is the chief warden of the hostels who manages the affairs of the hostel with the help of resident tutors and other staff.

### **6.4 College Store:**

With the aim of helping the students to procure study materials of good quality, the authorities have started a students store inside the campus. All stationery including textbooks, drawing instruments etc. is available. As the store is functioning on a no-profit basis, students can purchase materials and

textbooks at a discounted rate. The store is open throughout the college working hours. A senior Staff member is in charge of the store.

### **6.5 College Canteen:**

A canteen is functioning inside the campus. Tea, Coffee, Snacks, Lunch etc. are available at moderate rates.

### **6.6 College Bus:**

The College Buses ply to all-important points as per the needs of the students. The bus secretary is in charge of time scheduling and other arrangements regarding the bus. The bus timings are as follows

Morning Trip (Towards College)

#### **Route**

1. Karunagappally
2. Changankulangara
3. Kayamkulam
4. Choonad
5. 2nd Milestone
6. Bharanikkavu
7. Adoor (Via Nooranad)
8. Adoor (Via Kудasanad)
9. Pathanapuram
10. Harippad
11. Chettikulangara
12. Chennithala
13. Mannar
14. Chengannur
15. Thiruvalla
16. Elavumthitta

17. Nangiarkulangara
18. Kollam
19. Pullukulangara
20. Pandalam
21. Venmony Circular

### **Evening Trip (From College)**

Time 4.35 pm

### **6.7 Post Office and Bank:**

The Pattoor Post Office is functioning at Pattoor Junction close to one of the Ladies Hostels. A branch of The Syndicate Bank of India is located at Pattoor Jn.

### **6.8 Hospital:**

Josco super speciality Hospital is an at a distance of 3 km. from the campus. The institute doctor will be visiting students Occasionally. Tel: 0479 – 2374982

### **6.9. Sports, Games and Arts**

Sports and games provide an excellent opportunity for students to interact with each other, develop true sportsman and team spiriv as well as to stay healthy. The college has facilities for outdoor games like football, cricket, volleyball, Basket Ball, Gymnassium and indoor games including carom, table tennis and chess.

The supporting faculty:

| <b>Name</b>        | <b>Department</b>     |
|--------------------|-----------------------|
| Mr. Somanadhan A R | Humanities & Science. |

Arts activities include special training classes in painting, drawing, classical and western music and dances. The students are given all forms of help in presenting themselves in all forms of arts at local and interuniversity competitions.

### **6.10. R & D Consultancy Centre**

The learning in an Engineering college spending huge amount of money will be futile, unless the knowledge gathered is fruitfully utilised for development of the Nation and the society. With this in mind, consultancy service for industries, R & D organisations, other government and non governmental organisation are provided. The main fields of consultancy provided are in the following areas:

1. Reaction Kinetics
2. Bio - Chemical reactions
3. Combustion generated pollution
4. Wind - energy systems
5. Solar thermal devices
6. Business Economics
7. Energy conservation
8. Waste heat recovery
9. Power plant economics
10. Microhydel systems etc
11. Water analysis
12. Chemical composition of alloys
13. Bio-Technology based industries

### **7. Training and Placement Cell**

Sree Buddha College Of Engineering has an independent Training & Placement Cell devoted to cater to the needs of organizations in conducting campus interviews for placements. Principal coordinates

the training and placement activities of SBCE. Mr.Pradeep Kumar R. (Lecturer, M.Com; MBA) assists the Principal and carries out the day-to-day activities with the help of other members of the cell. This Cell ensures and takes care to provide the best arrangements and hospitality for the visiting company officials.

The Training and Placement Cell provides all audiovisual facilities for preplacement talk, written test, group discussion and interviews. It plays a very important and key role in counselling and guiding the students of the college for their successful career placement, which is a crucial interface between the stages of completion of academic program of the students and their entry into suitable employment. This Cell also coordinates various activities related to career development of the students along with the industrial training.

Students are placed in reputed companies like Infosys, Wipro, DELL, TCS, US Technology, IBS, NEST,CTS, Accenture, BIRLA Soft, Convergys, etc. Around 70% of final year students are also placed. Pre-final students are also getting placement. To improve students communication skill / aptitude skill which makes them employable, training programmes are started from the 1st year onwards.

Mr. Pradeep Kumar                      Placement Officer

### **7.1 Training & Placement Activities**

In addition to campus placements the T&P cell organizes a number of programs for the benefit of students as listed below:

- Personality development
- Interpersonal & Communication skills.
- Career planning and Career Mapping.
- Program on “Technology Management”.
- Soft Skill Training
- Yoga and Meditation



## **7.2 Trainings**

An in home training programme is being conducted for in the students by the faculty. The modules offered are :

1. Module on soft skills enhancements
2. Module on Communicative English
3. Module on Problem solving skills

## **7.3 Placement procedure**

The general format followed is as given below. It consists of Five Stages:

- (1) Preplacement Talk
- (2) Written Test
- (3) Group Discussion
- (4) Interview - HR & Technical
- (5) Result publishing

If the company prefers any other mode of selection, the cell will make the required arrangements.

- The Placement Cell invites companies to the college / the companies can contact the Placement Officer for their requirement.
- To the responding companies, the details of the final year students opting for placement are sent as per their requirement.
- The companies have an option to conduct the recruitment at the Colleges Campus or any other venue decided by the company.
- The company will be assigned a convenient date according to their choice.
- After confirmation by the company, a pre-placement talk can be arranged on the date.

- The company can conduct test and/or group discussion to short list the interested students.
- The company can interview the short listed students for final selection.

## **8. Associations**

### **8.1. Students Associations**

With the aim of knowledge enhancement of the students, both academically and technically, student associations are formed. Experts, Scientists and Senior Technicians from industries(both govt. and private), R&D Organisations and reputed colleges are invited for delivering speeches. Students are also counselled in personality development, leadership, stress management etc. by eminent persons organized by these are as follows:-

|           |                             |
|-----------|-----------------------------|
| BUDS      | Biotechnology               |
| CYBORG    | Computer Science            |
| CASTELLOS | Civil Engineering           |
| ETA       | Electronics & Communication |
| TACHYONS  | Electrical & Electronics    |
| MOMENT    | Mechanical Engineering      |

### **8.2. ISTE & IEEE**

College has the characters of ISTE (Indian Society for Technical Education) and IEEE (Institute of Electrical & Electronics Engineers). These societies conduct various seminars and short term training programmes in recent technologies for both staff and students. Student branch is also working.

|                           |                    |
|---------------------------|--------------------|
| Committee Members of ISTE | Secretary          |
| Members of IEEE           | Student Counsellor |

### **8.3. Various Clubs**

- Centre for Soft Skill Development (CSD)
- Industry - Institute - Community Interaction
- Cell (IICIC) Entrepreneurship Development Cell (EDC)
- Energy and Environment Conservation Club (EECC)
- Robotics Club (ECE dept.)

### **8.4. The Parent Teacher Association**

A Parent Teacher Association is functioning in the college. Every year new executive committee members are elected. The Principal is the ex-officio president. The secretary will be a senior staff member. The Vice President, Joint secretary and three parents are elected in the PTA general body meeting.

## **9. Academic Bodies**

### **9.1. The Academic Council**

The academic council consists of the Chairman, Principal, Dean and Heads of Departments. The Chairman is the Ex-Officio Preside the council. There shall be a minimum of 3 meetings in a year.

### **9.2. The College Council**

The college council consists of the Principal, Dean, Heads of Departments, Workshop Superintendent, Visiting Warden of the Hostels and Placement officer. The Principal is the Ex- Officio president of the council and the council appoints the Secretary. The Principal may consider the opinion of the college-council in the administration of the college. The College Council meets once in every month or as and when called upon.

### **9.3 The Staff Convenors:**

#### **Examination Cell**

1. Chief Examiner : Mr. Sabi S.

**Time Table Committee** - Co – Ordinator - Ms. Minu Lalitha Madhavu

6. Sports Committee - Mr. Somanadhan A R

7. Arts Committee - Ms. Minu Lalitha Madhava

8. Discipline Committee - Prof. S. sreekumar

### **The Students Council (SAC)**

The College has a student's council, the objective of which shall be

- a. To train the students of the college in the duties, responsibilities and rights of citizenship.
- b. To promote opportunities for the development of character, leadership, efficiency, knowledge and spirit of service among the students.
- c. To encourage sports, arts and other cultural, educational and recreational activities that are incidental and conducive to the above objectives and
- d. To work for the general welfare of the student community.
- e. To Publish College Magazine

The college also has sectional associations in each Department. The term of the council is generally one year from the date from which the council assumes office or till the date of nominations to the council in the subsequent year.

### **10. Council Members**

Procedure for selecting the Council members 1) The members of the class elect one each from the boys and girls as Class Representatives.

2) These Class Representatives should select a person from a selected list of candidates as a council Member for each position depending on the abilities and leadership qualities.

- 3) The candidates who would like to represent himself as a council Member should fulfill the following criterion.
- i) He/She should have proper knowledge about the responsibilities of the position he is representing.
  - ii) He/She should have good and consistent academic records. Without any back logs and tenures

### **10.1. NSS Activities**

MOTTO- “ Not me, But you”

NSS unit was inaugurated on October'2004 with plans of community service and environmental, wasteland development. It has been divided into two schemes.

- i) Regular activities-(120 hrs. per annum). Here the students render their service to the community like general awareness programmes, improvement of sanitation in the neighbourhood.
- ii) Special camp activities- (7 days a year). The students focus on water shed management, waste land development and environmental friendly activities.

N.S.S. Programme Officer –

### **11. The Group Advisory System**

**Prof. Thomas Mathew**, is the Chief Advisor. Immediately on admission to the college, each student will be assigned to a faculty member called the Staff Advisor for that batch, who will open a student file for personal and academic details. The student and his parent can have frequent interaction with the Staff Advisor. After the release of result of each examination the details will be recorded in the student file. The Staff Advisor will record any outstanding performance, or disciplinary action, misbehavior etc. in the student file

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## 12. Discipline

The students and the staff are expected to behave in a manner that shall uphold the integrity of the Nation and befitting to a Higher Educational Institution.

### 12.1 Working time:

1. Class Time : 8:30am-4.20 pm  
(Lunch break : 12.50 to 1.30)
2. Office Time : 9.00am- 5.00pm  
(Lunch break : 1.30 to 2.00)
3. Library Time : 8.00 am to 8.00 pm
4. Computer Centre : 8.00 am to 8.00 pm
5. College Stores : 9.00 am to 5.00 pm
6. Language lab : 8.00 am to 8.00 pm

### 12.2 College Uniform :

Students have to come in proper uniform as follows: -

- Gents : Blue striped shirts (half sleeves) Single pocket, tucked inside pants and belt. Trousers (Navy blue)
- Ladies : Full sleeve shirts and (Blue striped shirt)long pant (Navy Blue) with Navy blue jacket.
- Workshop class : Full sleeve shirts and (Blue striped shirt)long pant (Navy Blue) with Navy blue jacket.

#### **12.4 Ragging is strictly prohibited in the campus**

The Kerala Prohibition of Ragging Act 1988 is in force and those found guilty of ragging will be liable to be punished with imprisonment upto 2 years along with fine. An anti-ragging Committee is on the vigil in the campus. The students / parents can report incidents of ragging to any member of the college staff.

#### **12.5 Mobile Phone is restricted**

Use of mobile phones is restricted in the campus. Students are not allowed to use the mobile phones in the campus during working hours. Those who violate this will have their phones confiscated and have to pay a fine of Rs. 500/- for the offence.

### **13. Admission Procedure**

The admission is as per the guidelines issued by Govt. of Kerala, following mandatory reservation. Presently 50% of the seats (30 seats in each branch) are admitted by the Commissioner of Entrance Examinations, Govt. of Kerala as per the rank list of Engineering Entrance Examination. Remaining 50% of the seats (30 seats in each branch) are Management / NRI seats. Both these categories will be admitted by the management and they should possess minimum marks as given in section 13.1. However NRI candidates need not appear the Engineering Entrance Examination. The details are given in section 13.2.

#### **13.1. Minimum Marks for Admission: ‘**

All candidates whether admitted through Central admission procedure (Govt.) or through Management or NRI quota should possess a minimum mark of 50%(SC/ST-pass) for Mathematics; and 50%(SC/ST-pass) aggregate for Mathematics, Physics & Chemistry in plus two levels.

#### **13.2 Distribution of Seats for each branch**

The distribution of seats for various branches of Sree Buddha College of Engineering as per the Commissioner for Entrance Examinations, Govt. of Kerala is as follows:

| Course | Government | Management/NRI | Total |
|--------|------------|----------------|-------|
| BT     | 45         | 15             | 60    |
| EC     | 30         | 30             | 60    |
| CS     | 30         | 30             | 60    |
| ME     | 60         | 60             | 120   |
| EE     | 30         | 30             | 60    |
| CE     | 30         | 30             | 60    |

**M.Tech**

|     |   |    |
|-----|---|----|
| CE  | - | 24 |
| ME  | - | 18 |
| BT  | - | 18 |
| CS  | - | 18 |
| EC  | - | 18 |
| EEE | - | 24 |



**KTU RULES**

- The B.Tech., / B.Tech. (Honours) programme is a credit based programme. The duration of the B. Tech / B. Tech (Honours) programme will normally be four academic years spanning 8 semesters. The maximum duration shall be six academic years spanning 12 semesters
- Each semester shall have 72 instructional days, followed by end semester examinations. A student can opt for B.Tech. (Honours) at the end of the fourth semester. The curriculum of any branch of the B. Tech. programme is designed to have a minimum of 180 academic credits and 2 additional pass/fail credits, for the award of the degree

| Knowledge Segments               | Credits                |
|----------------------------------|------------------------|
| Basic Sciences                   | 10 [8 Theory+ 2 Labs]  |
| Mathematics                      | 16                     |
| Humanities                       | 9                      |
| Basic Engineering                | [25 Theory +4 Labs]    |
| 29 Professional Engineering      | 89 [80 Theory +9 Labs] |
| Electives                        | 15                     |
| Seminar                          | 2                      |
| Comprehensive Viva               | 2                      |
| Design Project                   | 2                      |
| Project                          | 6                      |
| Total Academic Credits:          | 180                    |
| Student's Activities             | 2 [Audit-Pass/Fail]    |
| Total credits for B.Tech. Degree | 182                    |

- One credit for each lecture hour per week for one semester One credit for each tutorial hour per week for one semester One credit for each laboratory/ practical session of 2 or 3 hrs, per week

for one semester. In a semester normally up to six lecture based courses and three laboratory/practical courses, carrying a maximum credit of 26, could be offered.

- To be an engineer capable of competing globally, in addition to technical knowledge and skills, students should develop excellent soft skills, nurture team work and leadership qualities and have an entrepreneurial and trail blazing outlook. To achieve this, in addition to academics, students are to actively engage in co-curricular and extracurricular activities. For such activities, points are allotted. On getting a minimum of 100 activity points the student passes the course and earns 2 credits which do not count for the CGPA but mandatory for the award of the degree
- At the end of the semester, end semester examination will be conducted in all lecture based courses offered in the semester and will normally be of three hours duration, unless otherwise specified. Supplementary examinations shall be conducted before the commencement of the next semester, for students who are eligible and have registered for them
- The main eligibility criteria for the end semester examination are attendance in the course, internal marks and no pending disciplinary action. The minimum attendance for appearing for the end semester examination is 75% in each course. Further, the internal evaluation marks in the course should be 45% or above. Students who do not meet these eligibility criteria are awarded an FE grade and have to register for the course again
- Students who could not write the end semester examination due to health reasons or other exigencies can register for the supplementary examination, with the approval of the principal provided they have 45% or above marks in the internal evaluations for the course. Candidates who received F grade can also write the supplementary examination. Grades awarded in the supplementary examination will be taken as the end semester grades in these courses.
- Students who could not earn the required minimum credits at the end of the second or fourth semester have two options to continue with the studies. They may register again for the courses, when they are offered in the next academic year. However, there is also a provision to run summer courses in failed courses for these students who may register and attend the course and write the final examination. This provision is only for students who have got 45% or more in the internal evaluation for the courses they attended in the regular semester. Students should have 75% attendance in the summer course to write the examination. For the final grading their internal evaluation marks obtained in the regular semester in which they had undergone the

course shall be applicable. Summer courses are to be conducted for a minimum of 20 contact hours for each course. Summer courses are to be offered only at the end of the second and fourth semesters for the courses covered till that semester. They will be conducted either by all colleges or only by some, depending on the number of students registering for them

- For higher semesters, i.e., fifth semester onwards, summer courses are not offered. Failed students who have less than 45% marks in internal assessments have to register again for the course in the regular semester in which it is offered and complete the course as per the regulations and appear for the end semester examination. Failed students having 45% marks or more in internal assessments have the option to register again for the course as mentioned above or register only for the end semester examination without attending the course again.
- Academic Evaluation of Courses University follows a continuous academic evaluation procedure. Academic evaluation procedure and corresponding weights are as follows:-
  - a) For theory courses: - 1/3rd weightage for internal evaluation and 2/3rd for end semester examination.

For convenience, the maximum marks for internal evaluation and end semester examination for theory courses are fixed as 50 and 100 respectively.

Scheme of evaluation is as follows.

- i) Two internal tests each of 20 marks and of one hour duration. (Internally by the College)
  - ii) Tutorials/Assignments/Mini Projects carrying 10 marks. (Internally by the College)
  - iii) iii) End Semester examination carrying 100 marks. (Conducted by the University)
- b) For Laboratory /Practical /Workshop courses
- i) Practical records /Outputs 60 marks (Internally by the College)
  - ii) Regular class Viva 10 marks (Internally by the College)
  - iii) Final written test/quiz 30 marks (Internally by the College) All the above assessments are mandatory to earn credits. If not, the student has to complete the course/assessments during his free time in consultation with the faculty members. On completion of these, grades will be assigned. In case the Practical /Laboratory/Workshop courses are not completed in the semester, grade I

(incomplete) will be awarded against the course and the final grade will be given only after the completion of the course/assessments.

- c) Comprehensive Examination As students appear for placements from seventh semester onwards, comprehensive examination is to be completed in the sixth semester. This examination will be a written cum oral examination covering broadly all courses so far completed .
- d) Seminar Each student has to give a seminar on a professional topic of current interest in consultation with the faculty member in charge of the seminar in the Department.
- e) Design Project Each student or a group of students has to take up a design project. The project topic could be arrived at in consultation with any faculty member in the department. The Evaluation of the project is to be done in two stages. Two project progress evaluations each carrying 20 marks and a final report evaluation and presentation of the project for 60 marks. The project supervisor and two other faculty members from the same or any other department, nominated by the Head of the Department form the evaluation board.
- f) Final Semester Project Students, either individually or in a small batch not exceeding four, have to do a project approved by their faculty supervisor.

Evaluation scheme is given below:-

- i) Two progress assessments 20% by the faculty supervisor/s
  - ii) Final Project Report 30% by the Assessment Board
  - iii) Project presentation and Viva 50% by the Assessment Board If the project work is not completed satisfactorily, the student has to put in more work and appear again for assessment on a specified date, not earlier than one month after the first evaluation. If the student fails in the project, a fresh registration for the project for one semester is mandatory. The project assessment board shall consist of the following members. Chairman: Head of the Department Members: Project supervisor/s of the student One faculty member from the Department One faculty member from a sister Department An external expert, either from an academic/research institute or industry
- A student has to earn a minimum number of credits in a semester to be eligible to register for the new courses offered in the next semester

## Eligibility Criteria for Registering for Higher Semester Courses

| Semester | Allotted Credits | Cumulative Credits | Minimum cumulative credits required to register for courses in higher semesters |
|----------|------------------|--------------------|---|
| First    | 24               | 24                 | Not insisted  |
| Second   | 23               | 47                 | Not insisted  |
| Third    | 24               | 71                 | Not insisted  |
| Fourth   | 23               | 94                 | Not insisted  |
| Fifth    | 23               | 117                | 26 credit up to s2  |
| Sixth    | 23               | 140                | Not insisted  |
| Seventh  | 22               | 162                | 52 credit up to s4  |
| Eighth   | 18               | 180                | Not insisted  |

- Semester grade card will give the grade for each registered course, Semester Grade Point Average (SGPA) for the semester as well as Cumulative Grade Point Average (CGPA).

Grades and Grade Points as per UGC guidelines is to be followed by the University Grade Point (GP) % of Total Marks obtained in the course O (Outstanding) 10 90% and above 9 85% and above but less than 90% A (Very Good) 8 80% and above but less than 85% B+ (Good) 7 70% and above but less than 80% B (Above Average) 6 60% and above but less than 70% C (Average) 5 50% and above but less than 60% P (Pass) 4 45% and above but less than 50% F (Fail) 0 Less than 45% FE 0 Failed due to eligibility criteria [7-o] I Course Incomplete SGPA and CGPA are calculated based on the above grading norms and are explained at the end of this document.

| Grades          | Grade Point (GP) | % of Total Marks obtained in the course |
|-----------------|------------------|---|
| O (Outstanding) | 10               | 90% and above                           |
| A+ (Excellent)  | 9                | 85% and above but less than 90%         |
| A (Very Good)   | 8                | 80% and above but less than 85%         |
| B+ (Good)       | 7                | 70% and above but less than 80%         |

|                     |   |                                    |
|---------------------|---|------------------------------------|
| % B (Above Average) | 6 | 60% and above but less than 70%    |
| C (Average)         | 5 | 50% and above but less than 60%    |
| P (Pass)            | 4 | 45% and above but less than 50%    |
| % F (Fail)          | 0 | Less than 45%                      |
| FE                  | 0 | Failed due to eligibility criteria |

- Every student is required to observe discipline and decorous behaviour. Any act of indiscipline, misbehaviour and unfair practice in examinations will be referred to the Disciplinary Action Committee (DAC). Malpractices in examinations shall be viewed seriously and any such incident observed or reported by a faculty member or an invigilator associated with the examinations shall be reported to the Principal who in turn shall refer it to DAC. On the basis of the report and evidence available or gathered, DAC shall immediately initiate an enquiry giving the concerned student a chance to explain his/her case. Based on this the committee shall recommend the course of action in line with the guidelines formulated for this by the Controller of Examination of the University and forward it to the Principal for action. Actions are to be based on the severity of the offence and are to be dealt with, on a course basis. Guidelines on this shall be given by the Controller of Examination which is to be followed by the Disciplinary Action Committee of the college.

#### 14. Curriculum and Scheme of Examinations

##### 1<sup>st</sup> Year

##### Semester 1

| Slot         | Course No. | Subject               | L-T-P | Hours | Credits |
|--------------|------------|-----------------------|-------|-------|---------|
| A            | MA101      | Calculus              | 3-1-0 | 4     | 4       |
| B            | PH100      | Engineering Physics   | 3-1-0 | 4     | 4       |
| <b>(1/2)</b> | CY100      | Engineering Chemistry | 3-1-0 | 4     | 4       |

|              |                                 |   |               |           |                    |
|--------------|---------------------------------|---|---------------|-----------|--------------------|
| C            | BE100                           | Engineering Mechanics   | 3-1-0         | 4         | 4                  |
| <b>(1/2)</b> | BE110                           | Engineering Graphics  | 1-1-3         | 5         | 3                  |
| D            | BE101-0X                        | Introduction to_____Engineering   | 2-1-0         | 3         | 3                  |
| E            | BE103                           | Introduction to Sustainable Engineering   | 2-0-1         | 3         | 3                  |
|              | CE100                           | Basics of Civil Engineering   | 2-1-0         | 3         | 3                  |
| F            | ME100                           | Basics of Mechanical Engineering  | 2-1-0         | 3         | 3                  |
| <b>(1/4)</b> | EE100                           | Basics of Electrical Engineering  | 2-1-0         | 3         | 3                  |
|              | EC100                           | Basics of Electronics Engineering   | 2-1-0         | 3         | 3                  |
| S            | PH110                           | Engineering Physics Lab   | 0-0-2         | 2         | 1                  |
| <b>(1/2)</b> | CY110                           | Engineering Chemistry Lab   | 0-0-2         | 2         | 1                  |
| T            | CE110/ME110/<br>0/              | Basic Engineering Workshops   | 0-0-2         | 2         | 1                  |
| <b>(2/4)</b> | EE110/EC110<br>/<br>CS110/CH110 | (CS110 for CS and related branches and<br>CH110 for CH and related branches only) | +             |           |                    |
|              |                                 |   | 0-0-2         | 2         | 1                  |
| U            |                                 | U100 Language lab/CAD Practice/Bridge<br>courses/Micro Projects etc               | 0-0-<br>(2/3) | (2/<br>3) |                    |
|              |                                 |   |               | 3<br>0    | 24/2<br>3          |
| V            |                                 | V100 Entrepreneurship/TBI/NCC/NSS/<br>Physical Edn. Etc                           | 0-0-2         | 2         | Activity<br>points |

**Semester 2**

| <b>Slot</b>          | <b>Course No.</b> | <b>Subject</b>                                    | <b>L-T-P</b> | <b>Hours</b> | <b>Credits</b> |
|----------------------|-------------------|---|--------------|--------------|----------------|
| A                    | MA102             | Differential Equations                            | 3-1-0        | 4            | 4              |
| B                    | PH100             | Engineering Physics                               | 3-1-0        | 4            | 4              |
| <b>(1/2)</b>         | CY100             | Engineering Chemistry                             | 3-1-0        | 4            | 4              |
| C                    | BE100             | Engineering Mechanics                             | 3-1-0        | 4            | 4              |
| <b>(1/2)</b>         | BE110             | Engineering Graphics                              | 1-1-3        | 5            | 3              |
| D                    | BE102             | Design & Engineering                              | 2-0-2        | 4            | 3              |
| E, F<br><b>(2/4)</b> | CE 100            | Basics of Civil Engineering                       | 2-1-0        | 3            | 3              |
|                      | ME 100            | Basics of Mechanical Engineering                  | 2-1-0        | 3            | 3              |
|                      | EE 100            | Basics of Electrical Engineering                  | 2-1-0        | 3            | 3              |
|                      | EC 100            | Basics of Electronics Engineering                 | 2-1-0        | 3            | 3              |
|                      | CS 100            | Computer Programming (Only for CSE & IT branches) | 2-1-0        | 3            | 3              |
| S                    | PH110             | Engineering Physics Lab                           | 0-0-2        | 2            | 1              |
| <b>(1/2)</b>         | CY110             | Engineering Chemistry Lab                         | 0-0-2        | 2            | 1              |



|       |   |  |               |           |                         |
|-------|---|--|---------------|-----------|-------------------------|
| T     | CE110/ME110/<br>EE110/EC110<br><br>CS 120 | Basic Engineering<br>Workshops<br><br>Computer Programming Lab(<br>only for CSE & IT Branches) | 0-0-2         | 2         | 1                       |
| (2/4) |   |  | 0-0-2         | 2         | 1                       |
| U     |   | U100 Language lab / CAD<br>Practice / Bridge courses /<br>Micro Projects etc                   | 0-0-<br>(1/2) | (1/2)     |                         |
|       |   |  |               | <b>30</b> | <b>24/2</b><br><b>3</b> |
| V     |   | V100 Entrepreneurship<br>/TBI/NCC/NSS/<br>Physical Edn. Etc                                    | 0-0-2         | 2         | Activity<br>points      |

## Biotechnology and Biochemical Engineering

### Semester 3

| <i>Course Code</i> | <i>Course Name</i>                      | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| MA201              | Linear Algebra<br>& Complex<br>Analysis | 3-1-0        | 4              | A                |
| BT201              | Fluid Flow and<br>Particle              | 3-1-0        | 4              | B                |

|              |  |              |   |   |
|--------------|--|--------------|---|---|
|              | Technology                             |              |   |   |
| BT203        | Concepts In Biochemical Engineering    | 4-0-0        | 4 | C |
| BT205        | Bioprocess Calculations                | 3-1-0        | 4 | D |
| BT207        | Microbiology                           | 3-0-0        | 3 | E |
| HS200/ HS210 | Business Economics/Life Skills         | 3-0-0/ 2-0-2 | 3 | F |
| BT231        | Microbiology Lab                       | 0-0-3        | 1 | S |
| BT233        | Fluid Flow and Particle Technology Lab | 0-0-3        | 1 | T |

**Total Credits = 24****Hours: 28/29****Cumulative Credits= 71****Semester 4**

| <i>Course Code</i> | <i>Course Name</i>                             | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| MA206              | Probability & Statistics and Numerical Methods | 3-1-0        | 4              | A                |
| BT202              | Bioprocess Heat Transfer                       | 3-1-0        | 4              | B                |
| BT204              | Industrial Bioprocessing                       | 4-0-0        | 4              | C                |
| BT206              | C++ Programming                                | 3-0-0        | 3              | D                |

|              |                                      |              |   |   |
|--------------|--------------------------------------|--------------|---|---|
| BT208        | Principles of Biochemistry           | 3-0-0        | 3 | E |
| HS210/ HS200 | Life Skills/Business Economics       | 2-0-2/ 3-0-0 | 3 | F |
| BT232        | Biochemistry Lab                     | 0-0-3        | 1 | S |
| BT234        | Instrumental Methods of Analysis Lab | 0-0-3        | 1 | T |

**Total Credits = 23****Hours 28/27****Cumulative Credits= 94****Semester 5**

| <i>Course Code</i> | <i>Course Name</i>                           | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| BT301              | Mass Transfer Operations                     | 3-1-0        | 4              | A                |
| BT303              | Chemical and Biological Reaction Engineering | 3-0-0        | 3              | B                |
| BT305              | Cellular and Molecular Biology               | 3-0-0        | 3              | C                |
| BT307              | Bioprocess Instrumentation                   | 3-0-0        | 3              | D                |
| BT309              | Enzyme Engineering and Technology            | 3-0-0        | 3              | E                |
|                    | <b>Elective 1</b>                            | 3-0-0        | 3              | F                |

|       |                                |       |   |   |
|-------|--------------------------------|-------|---|---|
| BT341 | Design Project                 | 0-1-2 | 2 | S |
| BT331 | Biochemical<br>Engineering Lab | 0-0-3 | 1 | T |
| BT333 | Software Lab                   | 0-0-3 | 1 | U |

**Total Credits = 23****Hours: 28****Cumulative Credits= 117**

- Elective 1:-**
1. BT361      Animal and Plant Cell Biotechnology
  2. BT363      Metabolic Engineering and Synthetic Biology
  3. BT365      Proteomics and Protein Engineering
  4. BT367      Tissue Engineering and Stem Cells

**Semester 6**

| <i>Course Code</i> | <i>Course Name</i>                                 | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| BT302              | Transport<br>Phenomena in<br>Biological<br>Systems | 4-0-0        | 4              | A                |
| BT304              | Downstream<br>Processing                           | 3-0-0        | 3              | B                |
| BT306              | Bioprocess<br>Engineering                          | 3-0-0        | 3              | C                |
| BT308              | Bioreactor<br>Analysis and<br>Design               | 3-0-0        | 3              | D                |
| HS300              | Principles of<br>Management                        | 3-0-0        | 3              | E                |
|                    | <b>Elective 2</b>                                  | 3-0-0        | 3              | F                |
| BT332              | Heat and Mass<br>Transfer Lab                      | 0-0-3        | 1              | S                |

|       |                           |       |   |   |
|-------|---------------------------|-------|---|---|
| BT334 | Downstream Processing Lab | 0-0-3 | 1 | T |
| BT352 | Comprehensive Exam        | 0-1-1 | 2 | U |

**Total Credits = 23****Hours: 27****Cumulative Credits= 140**

## Elective

1. BT362 Sustainable Energy Processes
2. BT364 Bio refinery Engineering
3. BT366 Bioremediation Technology
4. BT368 Genetic Engineering

**Semester 7**

| <i>Course Code</i> | <i>Course Name</i>           | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|------------------------------|--------------|----------------|------------------|
| BT401              | Process Dynamics and Control | 4-0-0        | 4              | A                |
| BT403              | Bioinformatics               | 3-0-0        | 3              | B                |
| BT405              | Environmental Engineering    | 3-0-0        | 3              | C                |
| BT407              | Bioenergy Engineering        | 3-0-0        | 3              | D                |
| BT409              | Environmental Biotechnology  | 3-0-0        | 3              | E                |
|                    | <b>Elective 3</b>            | 3-0-0        | 3              | F                |
| BT451              | Seminar & Project            | 0-1-4        | 2              | S                |

|       |   |       |   |   |
|-------|---|-------|---|---|
|       | Preliminary   |       |   |   |
| BT431 | Reaction<br>Engineering<br>and Process<br>Control Lab | 0-0-3 | 1 | T |

**Total Credits = 22****Hours: 27****Cumulative Credits= 162****Elective 3:-**

1. BT461 Design of Biological Wastewater Treatment Systems
2. BT463 Bioprocess Optimization Modelling and Simulation
3. BT465 Advanced Separation Processes
4. BT467 Biopharmaceutical Technology

**Semester 8**

| Course Code | Course Name                              | L-T-P | Credits | Exam Slot |
|-------------|--|-------|---------|-----------|
| BT402       | Bioprocess<br>Plant Design<br>and Safety | 3-0-0 | 3       | A         |
| BT404       | Bioprocess<br>Quality Control            | 3-0-0 | 3       | B         |
|             | <b>Elective 4</b>                        | 3-0-0 | 3       | C         |
|             | <b>Elective 5 (Non<br/>Departmental)</b> | 3-0-0 | 3       | D         |
| BT492       | Project                                  |       | 6       | S         |

**Total Credits = 18****Hours: 30****Cumulative Credits= 180**

**Elective 4:-**

1. BT462      Biomaterials Engineering
2. BT464      Food Process Technology
3. BT466      Nano biotechnology
4. BT468      Entrepreneurship, IPR and Biosafety

**Electronics & Communication Engineering****Semester 3**

| <i>Course Code</i> | <i>Course Name</i>                | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|-----------------------------------|--------------|----------------|------------------|
| MA201              | Linear Algebra & Complex Analysis | 3-1-0        | 4              | A                |
| EC201              | Network Theory                    | 3-1-0        | 4              | B                |
| EC203              | Solid State Devices               | 3-1-0        | 4              | C                |
| EC205              | Electronic Circuits               | 3-1-0        | 4              | D                |
| EC207              | Logic Circuit Design              | 3-0-0        | 3              | E                |
| HS200/ HS210       | Business Economics/Life Skills    | 3-0-0/ 2-0-2 | 3              | F                |
| EC231              | Electronic Devices &              | 0-0-3        | 1              | S                |

|       |  |       |   |   |
|-------|--|-------|---|---|
|       | Circuits Lab                           |       |   |   |
| EC233 | Electronic<br>Design<br>Automation Lab | 0-0-3 | 1 | T |

**Total Credits = 24 Hours: 28/29**

**Cumulative Credits= 7**

**Semester 4**

| <i>Course Code</i> | <i>Course Name</i>  | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| MA204              | Probability,<br>Random<br>Processes and<br>Numerical<br>Methods | 3-1-0        | 4              | A                |
| EC202              | Signals &<br>Systems  | 3-1-0        | 4              | B                |
| EC204              | Analog<br>Integrated<br>Circuits                                | 4-0-0        | 4              | C                |
| EC206              | Computer<br>Organization  | 3-0-0        | 3              | D                |
| EC208              | Analog<br>Communication<br>Engineering                          | 3-0-0        | 3              | E                |
| HS210/ HS200       | Life<br>Skills/Business<br>Economics                            | 2-0-2/ 3-0-0 | 3              | F                |
| EC232              | Analog<br>Integrated<br>Circuits Lab                            | 0-0-3        | 1              | S                |



|       |                             |       |   |   |
|-------|-----------------------------|-------|---|---|
| EC230 | Logic Circuit<br>Design Lab | 0-0-3 | 1 | T |
|-------|-----------------------------|-------|---|---|

**Total Credits = 23 Hours= 27/28Cumulative Credits= 94**

### Semester 5

| <i>Course Code</i> | <i>Course Name</i>                  | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|-------------------------------------|--------------|----------------|------------------|
| EC301              | Digital Signal Processing           | 3-1-0        | 4              | A                |
| EC303              | Applied Electromagnetic Theory      | 3-0-0        | 3              | B                |
| EC305              | Microprocessors & Microcontrollers  | 3-0-0        | 3              | C                |
| EC307              | Power Electronics & Instrumentation | 3-0-0        | 3              | D                |
| HS300              | Principles of Management            | 3-0-0        | 3              | E                |
|                    | <b>Elective 1</b>                   | 3-0-0        | 3              | F                |
| EC341              | Design Project                      | 0-1-2        | 2              | S                |
| EC333              | Digital Signal Processing Lab       | 0-0-3        | 1              | T                |

**Total Credits = 23**

**Hours: 28**

**Cumulative Credits= 117**

**Elective 1:-** 1. EC361 Digital System Design

2. EC363 Optimization Techniques

3. EC365 Biomedical Engineering

4. EC360 Soft Computing

**Semester 6**

| <i>Course Code</i> | <i>Course Name</i>                        | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| EC302              | Digital Communication                     | 4-0-0        | 4              | A                |
| EC304              | VLSI                                      | 3-0-0        | 3              | B                |
| EC306              | Antenna & Wave Propagation                | 3-0-0        | 3              | C                |
| EC308              | Embedded System                           | 3-0-0        | 3              | D                |
| EC312              | Object Oriented Programming               | 3-0-0        | 3              | E                |
|                    | <b>Elective 2</b>                         | 3-0-0        | 3              | F                |
| EC332              | Communication Engg Lab (Analog & Digital) | 0-0-3        | 1              | S                |
| EC334              | Microcontroller Lab                       | 0-0-3        | 1              | T                |
| EC352              | Comprehensive Exam                        | 0-1-1        | 2              | U                |

**Total Credits = 23****Hours: 27****Cumulative Credits= 140****Elective 2:-**

1. EC362 Modelling & Simulation of Communication Systems
2. EC366 Real Time Operating Systems

3. EC368      Robotics  
 4. EC370      Digital Image Processing

### Semester 7

| <i>Course Code</i> | <i>Course Name</i>                              | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| EC401              | Information Theory & Coding                     | 4-0-0        | 4              | A                |
| EC403              | Microwave & Radar Engg                          | 3-0-0        | 3              | B                |
| EC405              | Optical Communication                           | 3-0-0        | 3              | C                |
| EC407              | Computer Communication                          | 3-0-0        | 3              | D                |
| EC409              | Control Systems                                 | 3-0-0        | 3              | E                |
|                    | <b>Elective 3</b>                               | 3-0-0        | 3              | F                |
| EC451              | Seminar & Project Preliminary                   | 0-1-4        | 2              | S                |
| EC431              | Communication Systems Lab (Optical & Microwave) | 0-0-3        | 1              | T                |

**Total Credits = 22**

**Hours: 27**

**Cumulative Credits= 162**

#### **Elective 3:-**

1. EC461      Microwave Devices and Circuits  
 2. EC463      Speech and Audio Signal Processing  
 3. EC465      MEMS

4. EC467      Pattern Recognition  
 5. EC469      Opto Electronic Devices

### Semester 8

| <i>Course Code</i> | <i>Course Name</i>                   | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--------------------------------------|--------------|----------------|------------------|
| EC402              | Nano electronics                     | 3-0-0        | 3              | A                |
| EC404              | Advanced Communication Systems       | 3-0-0        | 3              | B                |
|                    | <b>Elective 4</b>                    | 3-0-0        | 3              | C                |
|                    | <b>Elective 5</b> (Non Departmental) | 3-0-0        | 3              | D                |
| EC492              | Project                              |              | 6              | S                |

**Total Credits = 18**

**Hours: 29**

**Cumulative Credits= 180**

#### **Elective 4:-**

1. EC462      Mixed Signal Circuit Design
2. EC464      Low Power VLSI Design
3. EC466      Cyber Security
4. EC468      Secure Communication
5. EC472      Integrated Optics & Photonic Systems
6. EC474      Computer Vision

## Computer Science & Engineering

### Semester 3

| <i>Course Code</i> | <i>Course Name</i>                      | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| MA201              | Linear Algebra &<br>Complex<br>Analysis | 3-1-0        | 4              | A                |
| CS201              | Discrete<br>Computational<br>Structures | 3-1-0        | 4              | B                |
| CS203              | Switching<br>Theory and<br>Logic Design | 3-1-0        | 4              | C                |
| CS205              | Data Structures                         | 3-1-0        | 4              | D                |
| CS207              | Electronics<br>Devices &<br>Circuits    | 3-0-0        | 3              | E                |
| HS210/<br>HS200    | Life<br>Skills/Business<br>Economics    | 2-0-2/ 3-0-0 | 3              | F                |
| CS231              | Data Structures<br>Lab                  | 0-0-3        | 1              | S                |
| CS233              | Electronics<br>Circuits Lab             | 0-0-3        | 1              | T                |

**Total Credits = 24   Hours: 28/29   Cumulative Credits= 71**

### Semester 4

| <i>Course Code</i> | <i>Course Name</i> | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--------------------|--------------|----------------|------------------|
| MA202              | Probability        | 3-1-0        | 4              | A                |

|                 |  |              |   |   |
|-----------------|--|--------------|---|---|
|                 | Distributions,<br>Transforms and<br>Numerical<br>Methods |              |   |   |
| CS202           | Computer<br>Organization and<br>Architecture             | 3-1-0        | 4 | B |
| CS204           | Operating<br>Systems                                     | 3-1-0        | 4 | C |
| CS206           | Object Oriented<br>Design and<br>Programming             | 2-1-0        | 3 | D |
| CS208           | Principles of<br>Database Design                         | 2-1-0        | 3 | E |
| HS210/<br>HS200 | Life<br>Skills/Business<br>Economics                     | 2-0-2/ 3-0-0 | 3 | F |
| CS232           | Free and Open<br>Source Software<br>Lab                  | 0-0-3        | 1 | S |
| CS234           | Digital Systems<br>Lab                                   | 0-0-3        | 1 | T |

**Total Credits = 23****Hours 28/27****Cumulative Credits= 94****Semester 5**

| <i>Course Code</i> | <i>Course Name</i>       | <i>L-T-P</i> | <i>Credits</i> | <i>Exam<br/>Slot</i> |
|--------------------|--------------------------|--------------|----------------|----------------------|
| CS301              | Theory of<br>Computation | 3-1-0        | 4              | A                    |
| CS303              | System Software          | 2-1-0        | 3              | B                    |

|       |                                      |       |   |   |
|-------|--------------------------------------|-------|---|---|
| CS305 | Microprocessors and Microcontrollers | 2-1-0 | 3 | C |
| CS307 | Data Communication                   | 3-0-0 | 3 | D |
| CS309 | Graph Theory and Combinatorics       | 2-0-2 | 3 | E |
|       | <b>Elective 1</b>                    | 3-0-0 | 3 | F |
| CS341 | Design Project                       | 0-1-2 | 2 | S |
| CS331 | System Software Lab                  | 0-0-3 | 1 | T |
| CS333 | Application Software Development Lab | 0-0-3 | 1 | U |

**Total Credits = 23**

**Hours: 29 Cumulative Credits= 117**

- Elective 1:-**
1. CS361 Soft Computing
  2. CS363 Signals and Systems
  3. CS365 Optimization Techniques
  4. CS367 Logic for Computer Science
  5. CS369 Digital System Testing & Testable Design

### Semester 6

| <i>Course Code</i> | <i>Course Name</i> | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--------------------|--------------|----------------|------------------|
| CS302              | Design and         | 3-1-0        | 4              | A                |

|       |   |       |   |   |
|-------|---|-------|---|---|
|       | Analysis of Algorithms                      |       |   |   |
| CS304 | Compiler Design                             | 3-0-0 | 3 | B |
| CS306 | Computer Networks                           | 3-0-0 | 3 | C |
| CS308 | Software Engineering and Project Management | 3-0-0 | 3 | D |
| HS300 | Principles of Management                    | 3-0-0 | 3 | E |
|       | <b>Elective 2</b>                           | 3-0-0 | 3 | F |
| CS332 | Microprocessor Lab                          | 0-0-3 | 1 | S |
| CS334 | Network Programming Lab                     | 0-0-3 | 1 | T |
| CS352 | Comprehensive Exam                          | 0-1-1 | 2 | U |

**Total Credits = 23**

**Hours: 27**

**Cumulative Credits= 140**

**Elective 2:-**

1. CS362 Computer Vision
2. CS364 Mobile Computing
3. CS366 Natural Language Processing
4. CS368 Web Technologies
5. CS372 High Performance Computing



**Semester 7**

| <i>Course Code</i> | <i>Course Name</i>                | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|-----------------------------------|--------------|----------------|------------------|
| CS401              | Computer Graphics                 | 4-0-0        | 4              | A                |
| CS403              | Programming Paradigms             | 3-0-0        | 3              | B                |
| CS405              | Computer System Architecture      | 3-0-0        | 3              | C                |
| CS407              | Distributed Computing             | 3-0-0        | 3              | D                |
| CS409              | Cryptography and Network Security | 3-0-0        | 3              | E                |
|                    | <b>Elective 3</b>                 | 3-0-0        | 3              | F                |
| CS451              | Seminar & Project Preliminary     | 0-1-4        | 2              | S                |
| CS431              | Compiler Design Lab               | 0-0-3        | 1              | T                |

**Total Credits = 22****Hours: 27****Cumulative Credits= 162****Elective 3:-**

1. CS461 Computational Geometry

2. CS463 Digital Image Processing
3. CS465 Bio Informatics
4. CS467 Machine Learning
5. CS469 Computational complexity

### Semester 8

| <i>Course Code</i> | <i>Course Name</i>            | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|-------------------------------|--------------|----------------|------------------|
| CS402              | Data Mining and Ware Housing  | 3-0-0        | 3              | A                |
| CS404              | Embedded Systems              | 3-0-0        | 3              | B                |
|                    | Elective 4                    | 3-0-0        | 3              | C                |
|                    | Elective 5 (Non Departmental) | 3-0-0        | 3              | D                |
| CS492              | Project                       |              | 6              | S                |

**Total Credits = 18    Hours: 30**

**Cumulative Credits= 180**

#### Elective 4:-

1. CS462 Fuzzy Set Theory and Applications
2. CS464 Artificial Intelligence
3. CS466 Data Science
4. CS468 Cloud Computing

**Mechanical Engineering****Semester 3**

| <i>Course Code</i> | <i>Course Name</i>                 | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|------------------------------------|--------------|----------------|------------------|
| MA201              | Linear Algebra & Complex Analysis  | 3-1-0        | 4              | A                |
| ME201              | Mechanics of Solids                | 3-1-0        | 4              | B                |
| ME203              | Mechanics of Fluids                | 3-1-0        | 4              | C                |
| ME205              | Thermodynamics                     | 3-1-0        | 4              | D                |
| ME210              | Metallurgy & Materials Engineering | 3-0-0        | 3              | E                |
| HS200/ HS210       | Business Economics/Life Skills     | 3-0-0/ 2-0-2 | 3              | F                |
| ME231              | Computer Aided Machine Drawing Lab | 0-0-3        | 1              | S                |
| CE230              | Material Testing Lab               | 0-0-3        | 1              | T                |

**Total Credits = 24****Hours: 28/29****Cumulative Credits= 71**

**Semester 4**

| <i>Course Code</i> | <i>Course Name</i>  | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| MA202              | Probability Distributions, Transforms and Numerical Methods | 3-1-0        | 4              | A                |
| ME202              | Advanced Mechanics of Solids                                | 3-1-0        | 4              | B                |
| ME204              | Thermal Engineering   | 3-1-0        | 4              | C                |
| ME206              | Fluid Machinery   | 2-1-0        | 3              | D                |
| ME220              | Manufacturing Technology                                    | 3-0-0        | 3              | E                |
| HS210/ HS200       | Life Skills/Business Economics                              | 2-0-2/ 3-0-0 | 3              | F                |
| ME232              | Thermal Engineering Lab                                     | 0-0-3        | 1              | S                |
| ME230              | Fluid Mechanics & Machines Lab                              | 0-0-3        | 1              | T                |

**Total Credits = 23    Hours 28/27****Cumulative Credits= 94**

**Semester 5**

| <i>Course Code</i> | <i>Course Name</i>                         | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| ME301              | Mechanics of Machinery                     | 3-1-0        | 4              | A                |
| ME303              | Machine Tools and Digital Manufacturing    | 3-0-0        | 3              | B                |
| ME305              | Computer Programming & Numerical Methods   | 2-0-1        | 3              | C                |
| EE311              | Electrical Drives & Control for Automation | 3-0-0        | 3              | D                |
| HS300              | Principles of Management                   | 3-0-0        | 3              | E                |
|                    | <b>Elective 1</b>                          | 3-0-0        | 3              | F                |
| ME341              | Design Project                             | 0-1-2        | 2              | S                |
| EE335              | Electrical and Electronics Lab             | 0-0-3        | 1              | T                |
| ME331              | Manufacturing Technology Lab I             | 0-0-3        | 1              | U                |

**Total Credits = 23****Hours: 28****Cumulative Credits= 117**

- Elective 1:-**
1. ME361 Advanced Fluid Mechanics
  2. ME363 Composite Materials and Mechanics
  3. ME365 Advanced Metal Casting

4. ME367 Non-Destructive Testing
5. ME369 Tribology
6. ME371 Nuclear Engineering
7. ME373 Human Relations Management

### Semester 6

| <i>Course Code</i> | <i>Course Name</i>                     | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| ME302              | Heat & Mass Transfer                   | 3-1-0        | 4              | A                |
| ME304              | Dynamics of Machinery                  | 2-1-0        | 3              | B                |
| ME306              | Advanced Manufacturing Technology      | 3-0-0        | 3              | C                |
| ME308              | Computer Aided Design and Analysis     | 3-0-0        | 3              | D                |
| ME312              | Metrology and Instrumentation          | 3-0-0        | 3              | E                |
|                    | <b>Elective 2</b>                      | 3-0-0        | 3              | F                |
| ME332              | Computer Aided Design and Analysis Lab | 0-0-3        | 1              | S                |
| ME334              | Manufacturing Technology Lab II        | 0-0-3        | 1              | T                |
| ME352              | Comprehensive Exam                     | 0-1-1        | 2              | U                |

**Total Credits = 23****Hours: 27****Cumulative Credits= 140****Elective 2:-**

1. ME362 Control System Engineering
2. ME364 Turbo Machinery
3. ME366 Advanced Metal Joining Technology
4. ME368 Marketing Management
5. ME372 Operations Research
6. ME374 Theory of Vibration
7. ME376 Maintenance Engineering

**Semester 7**

| <b>Course Code</b> | <b>Course Name</b>                 | <b>L-T-P</b> | <b>Credits</b> | <b>Exam Slot</b> |
|--------------------|------------------------------------|--------------|----------------|------------------|
| ME401              | Design of Machine Elements I       | 3-1-0        | 4              | A                |
| ME403              | Advanced Energy Engineering        | 3-0-0        | 3              | B                |
| ME405              | Refrigeration and Air Conditioning | 2-1-0        | 3              | C                |
| ME407              | Mechatronics                       | 3-0-0        | 3              | D                |
| ME409              | Compressible Fluid Flow            | 2-1-0        | 3              | E                |
|                    | <b>Elective 3</b>                  | 3-0-0        | 3              | F                |
| ME451              | Seminar & Project                  | 0-1-4        | 2              | S                |

|       |                               |       |   |   |
|-------|-------------------------------|-------|---|---|
|       | Preliminary                   |       |   |   |
| ME431 | Mechanical<br>Engineering Lab | 0-0-3 | 1 | T |

**Total Credits = 22****Hours: 27****Cumulative Credits= 14****Elective3:-**

1. ME461 Aerospace Engineering
2. ME463 Automobile Engineering
3. ME465 Industrial Hydraulics
4. IE306 Supply Chain and Logistics Management
5. ME467 Cryogenic Engineering
6. ME469 Finite Element Analysis
7. ME471 Optimization Techniques

**Semester 8**

| <i>Course Code</i> | <i>Course Name</i>                      | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| ME402              | Design of<br>Machine<br>Elements II     | 3-0-0        | 3              | A                |
| ME404              | Industrial<br>Engineering               | 3-0-0        | 3              | B                |
|                    | <b>Elective 4</b>                       | 3-0-0        | 3              | C                |
|                    | <b>Elective 5</b> (Non<br>Departmental) | 3-0-0        | 3              | D                |
| ME492              | Project                                 |              | 6              | S                |



**Total Credits = 18****Hours: 30****Cumulative Credits= :****Elective 4:-**

1. ME462 Propulsion Engineering
2. ME464 Robotics and Automation
3. ME466 Computational Fluid Dynamics
4. ME468 Nanotechnology
5. ME472 Failure Analysis and Design
6. ME474 Micro and Nano Manufacturing

**Electrical & Electronics Engineering****Semester 3**

| <i>code</i>  | <i>Course Name</i>                | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------|-----------------------------------|--------------|----------------|------------------|
| MA201        | Linear Algebra & Complex Analysis | 3-1-0        | 4              | A                |
| EE201        | Circuits and, Networks            | 3-1-0        | 4              | B                |
| EE203        | Analog Electronic Circuits        | 3-1-0        | 4              | C                |
| EE205        | DC Machines and Transformers      | 3-1-0        | 4              | D                |
| EE207        | Computer Programming              | 2-1-0        | 3              | E                |
| HS200/ HS210 | Business                          | 3-0-0/ 2-0-2 | 3              | F                |

|       |                         |       |   |   |
|-------|-------------------------|-------|---|---|
|       | Economics/Life Skills   |       |   |   |
| EE231 | Electronic Circuits Lab | 0-0-3 | 1 | S |
| EE233 | Programming Lab         | 0-0-3 | 1 | T |

**Total Credits = 24 Hours: 28/29 Cumulative Credits= 71**

#### Semeseter 4

| <i>Course Code</i> | <i>Course Name</i>  | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| MA202              | Probability Distributions, Transforms and Numerical Methods | 3-1-0        | 4              | A                |
| EE202              | Synchronous and Induction Machines                          | 3-1-0        | 4              | B                |
| EE204              | Digital Electronics and Logic Design                        | 2-1-0        | 3              | C                |
| EE206              | Material Science  | 3-0-0        | 3              | D                |
| EE208              | Measurements and Instrumentation                            | 3-1-0        | 4              | E                |
| HS210/ HS200       | Life Skills/Business Economics                              | 2-0-2/ 3-0-0 | 3              | F                |
| EE232              | Electrical  | 0-0-3        | 1              | S                |

|       |                               |       |   |   |
|-------|-------------------------------|-------|---|---|
|       | Machines Lab I                |       |   |   |
| EE234 | Circuits and Measurements Lab | 0-0-3 | 1 | T |

**Total Credits = 23****Hours 28/27****Cumulative Credits= 94****Semester 5**

|       | <i>Course Name</i>                            | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|-------|---|--------------|----------------|------------------|
| EE301 | Power Generation, Transmission and Protection | 3-1-0        | 4              | A                |
| EE303 | Linear Control Systems                        | 2-1-0        | 3              | B                |
| EE305 | Power Electronics                             | 3-0-0        | 3              | C                |
| EE307 | Signals and Systems                           | 3-0-0        | 3              | D                |
| EE309 | Microprocessor and Embedded Systems           | 2-1-0        | 3              | E                |
|       | <b>Elective 1</b>                             | 3-0-0        | 3              | F                |
| EE341 | Design Project                                | 0-1-2        | 2              | S                |
| EE331 | Digital Circuits and Embedded Systems Lab     | 0-0-3        | 1              | T                |
| EE333 | Electrical Machines Lab II                    | 0-0-3        | 1              | U                |

**Total Credits = 23****Hours: 28 Cumulative Credits= 117**

- Elective 1:-**
1. EE361 Object Oriented Programming
  2. EE363 Computer Organization and Architecture
  3. EE365 Digital System Design
  4. EE367 New and Renewable Energy Systems
  5. EE369 High Voltage Engineering

**Semester 6**

|       | <i>Course Name</i>               | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|-------|----------------------------------|--------------|----------------|------------------|
| EE302 | Electromagnetics                 | 2-1-0        | 3              | A                |
| EE304 | Advanced Control Theory          | 3-1-0        | 4              | B                |
| EE306 | Power System Analysis            | 3-0-0        | 3              | C                |
| EE308 | Electric Drives                  | 3-0-0        | 3              | D                |
| HS300 | Principles of Management         | 3-0-0        | 3              | E                |
|       | <b>Elective 2</b>                | 3-0-0        | 3              | F                |
| EE332 | Systems and Control Lab          | 0-0-3        | 1              | S                |
| EE334 | Power Electronics and Drives Lab | 0-0-3        | 1              | T                |
| EE352 | Comprehensive Exam               | 0-1-1        | 2              | U                |

**Total Credits = 23****Hours: 27****Cumulative Credits= 140****Elective 2:-**

1. EE362 Data Structures and Algorithms
2. EE364 Switched Mode Power Converters
3. EE366 Illumination Technology
4. EE368 Soft Computing
5. EE372 Biomedical Instrumentation

### Semester 7

| <i>Course Code</i> | <i>Course Name</i>                     | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| EE401              | Electronic communication               | 2-1-0        | 3              | A                |
| EE403              | Distributed generation and smart grids | 3-0-0        | 3              | B                |
| EE405              | Electrical system design               | 3-1-0        | 4              | C                |
| EE407              | Digital Signal Processing              | 3-0-0        | 3              | D                |
| EE409              | Electrical Machine Design              | 3-0-0        | 3              | E                |
|                    | <b>Elective 3</b>                      | 3-0-0        | 3              | F                |
| EE451              | Seminar & Project Preliminary          | 0-1-4        | 2              | S                |
| EE431              | Power system Lab                       | 0-0-3        | 1              | T                |

**Total Credits = 22**

**Hours: 27 Cumulative Credits= 162**

**Elective 3:-**

1. EE461 Modern Operating Systems
2. EE463 Computer Aided Power Systems Analysis
3. EE465 Power Quality
4. EE467 Nonlinear Control Systems
5. EE469 Electric and Hybrid Vehicles

### Semester 8

| <i>Course Code</i> | <i>Course Name</i>                      | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|---|--------------|----------------|------------------|
| EE402              | Special Electric Machines               | 3-0-0        | 3              | A                |
| EE404              | Industrial Instrumentation & Automation | 3-0-0        | 3              | B                |
|                    | Elective 4                              | 3-0-0        | 3              | C                |
|                    | Elective 5 (Non Departmental)           | 3-0-0        | 3              | D                |
| EE492              | Project                                 |              | 6              | S                |

**Total Credits = 18**

**Hours: 29**

**Cumulative Credits= 180**

#### Elective 4:-

1. EE462 Design of Digital Control Systems
2. EE464 FACTS
3. EE466 Digital Image Processing
4. EE468 Computer Networks
5. EE472 Internet of Things
6. EE474 Energy Management and Auditing

**Civil Engineering****Semester 3**

| <i>Code</i>  | <i>Course Name</i>                      | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------|---|--------------|----------------|------------------|
| MA201        | Linear Algebra<br>& Complex<br>Analysis | 3-1-0        | 4              | A                |
| CE201        | Mechanics of<br>Solids                  | 3-1-0        | 4              | B                |
| CE203        | Fluid<br>Mechanics- I                   | 3-1-0        | 4              | C                |
| CE205        | Engineering<br>Geology                  | 3-0-1        | 4              | D                |
| CE207        | Surveying                               | 3-0-0        | 3              | E                |
| HS200/ HS210 | Business<br>Economics/Life<br>Skills    | 3-0-0/ 2-0-2 | 3              | F                |
| CE231        | Civil<br>Engineering<br>Drafting Lab    | 0-0-3        | 1              | S                |
| CE233        | Surveying Lab                           | 0-0-3        | 1              | T                |

**Total Credits = 24****Hours: 28/29****Cumulative Credits= 71****Semester 4**

| <i>Course Code</i> | <i>Course Name</i>   | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--|--------------|----------------|------------------|
| MA202              | Probability<br>Distributions,<br>Transforms<br>and Numerical | 3-1-0        | 4              | A                |

|              |                                |              |   |   |
|--------------|--------------------------------|--------------|---|---|
|              | Methods                        |              |   |   |
| CE202        | Structural Analysis- I         | 3-1-0        | 4 | B |
| CE204        | Construction Technology        | 4-0-0        | 4 | C |
| CE206        | Fluid Mechanics- II            | 3-0-0        | 3 | D |
| CE208        | Geotechnical Engineering- I    | 3-0-0        | 3 | E |
| HS210/ HS200 | Life Skills/Business Economics | 2-0-2/ 3-0-0 | 3 | F |
| CE232        | Materials Testing Lab I        | 0-0-3        | 1 | S |
| CE234        | Fluid Mechanics Lab            | 0-0-3        | 1 | T |

**Total Credits = 23****Hours 28/27****Cumulative Credits= 94****Semester 5**

| <b>Code</b> | <b>Course Name</b>              | <b>L-T-P</b> | <b>Credits</b> | <b>Exam Slot</b> |
|-------------|---------------------------------|--------------|----------------|------------------|
| CE301       | Design of Concrete Structures I | 3-1-0        | 4              | A                |
| CE303       | Structural Analysis- II         | 3-0-0        | 3              | B                |
| CE305       | Geotechnical Engineering- II    | 3-0-0        | 3              | C                |
| CE307       | Geomatics                       | 3-0-0        | 3              | D                |



|       |                             |       |   |   |
|-------|-----------------------------|-------|---|---|
| CE309 | Water Resources Engineering | 3-0-0 | 3 | E |
|       | <b>Elective 1</b>           | 3-0-0 | 3 | F |
| CE341 | Design Project              | 0-1-2 | 2 | S |
| CE331 | Materials Testing Lab II    | 0-0-3 | 1 | T |

**Total Credits = 23****Hours: 28****Cumulative Credits= 117**

- Elective 1:-**
1. CE361      Advanced Concrete Technology
  2. CE363      Geotechnical Investigation
  3. CE365      Functional Design of Buildings
  4. CE367      Water Conveyance Systems
  5. CE369      Disaster Management
  6. CE371      Environment and Pollution
  7. CE 373      Advanced Mechanics of Materials

**Semester 6**

| <b>Course Code</b> | <b>Course Name</b>               | <b>L-T-P</b> | <b>Credits</b> | <b>Exam Slot</b> |
|--------------------|----------------------------------|--------------|----------------|------------------|
| CE302              | Design of Hydraulic Structures   | 4-0-0        | 4              | A                |
| CE304              | Design of Concrete Structures II | 3-0-0        | 3              | B                |

|       |   |       |   |   |
|-------|---|-------|---|---|
| CE306 | Computer Programming and Computational Techniques | 3-0-0 | 3 | C |
| CE308 | Transportation Engineering- I                     | 3-0-0 | 3 | D |
| HS300 | Principles of Management                          | 3-0-0 | 3 | E |
|       | <b>Elective 2</b>                                 | 3-0-0 | 3 | F |
| CE332 | Transportation Engineering Lab                    | 0-0-3 | 1 | S |
| CE334 | Computer Aided Civil Engineering Lab              | 0-0-3 | 1 | T |
| CE352 | Comprehensive Exam                                | 0-1-1 | 2 | U |

**Total Credits = 23**

**Hours:27**

**Cumulative Credits= 140**

**Elective 2:-**

1. CE362      Ground Improvement Techniques

2. CE364      Advanced Foundation Engineering

3. CE366 Traffic Engineering and Management

4. CE368 Prestressed Concrete

5. CE372 Engineering Hydrology

6. CE374 Air Quality Management

### Semester 7

| <i>Course Code</i> | <i>Course Name</i>               | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|----------------------------------|--------------|----------------|------------------|
| CE401              | Design of Steel Structures       | 4-0-0        | 4              | A                |
| CE403              | Structural Analysis- III         | 3-0-0        | 3              | B                |
| CE405              | Environmental Engineering- I     | 3-0-0        | 3              | C                |
| CE407              | Transportation Engineering -II   | 3-0-0        | 3              | D                |
| CE409              | Quantity Surveying and Valuation | 3-0-0        | 3              | E                |
|                    | <b>Elective 3</b>                | 3-0-0        | 3              | F                |
| CE451              | Seminar & Project Preliminary    | 0-1-4        | 2              | S                |
| CE431              | Environmental Engineering Lab    | 0-0-3        | 1              | T                |

**Total Credits = 22**

**Hours: 27**

**Cumulative Credits= 162**

**Elective 3:-**

1. CE461 Wave Hydrodynamics and Coastal Engineering
2. CE463 Bridge Engineering
3. CE465 Geo-Environmental Engineering
4. CE467 Highway Pavement Design
5. CE469 Environmental Impact Assessment
6. CE471 Advanced Structural Design
7. CE473 Advanced Computational Techniques and Optimization

**Semester 8**

| <i>Course Code</i> | <i>Course Name</i>                   | <i>L-T-P</i> | <i>Credits</i> | <i>Exam Slot</i> |
|--------------------|--------------------------------------|--------------|----------------|------------------|
| CE402              | Environmental Engineering II         | 3-0-0        | 3              | A                |
| CE404              | Civil Engineering Project Management | 3-0-0        | 3              | B                |
|                    | <b>Elective 4</b>                    | 3-0-0        | 3              | C                |
|                    | <b>Elective 5</b> (Non Departmental) | 3-0-0        | 3              | D                |
| CE492              | Project                              |              | 6              | S                |

**Total Credits = 18****Hours: 30****Cumulative Credits= 180****Elective 4:-**

1. CE462 Town and Country Planning

2. CE464 Reinforced Soil Structures and Geosynthetics
3. CE466 Finite Element Methods
4. CE468 Structural Dynamics and Earthquake Resistant Design
5. CE472 Transportation Planning
6. CE474 Municipal Solid Waste Management

## **RAGGING IS A CRIME AND REWARD IS JAIL**

The inhuman acts committed in the name of ragging on fellow students have been a matter of shame for any civilized society. Incidents of ragging have sometimes, led to death, suicide and mental disorders for victims. Many promising careers have been ruined causing loss to society and the nation. Ragging is a negation of the ancient value of learning in our country, viz learning in a peaceful atmosphere

under a Guru. Mortal exhortations of educational experts and ethical instructions of teachers have had \_ no impact on the unruly generations of students. It has often been felt by authorities, media } persons and general public that in several cases of ragging there was always a lack of ce «ge \_ \_ parental supervision and neglect on the part of the college authorities. In short saa ragging grew into a menacing criminal activity, which would require to be strictly , curbed by law, awarding stringent punishments to the culprits. But effective 'implementation of law requires building up ample awareness among the public about the serious nature of the crime. The criminal ramifications associated with ragging must also be focused to the attention of the students specially since ragging is sometimes committed on an impulse. The stringent provisions in the law and its scope must also be made widely known among the public.

### **What is Ragging ?**

Broadly speaking, ragging is any disorderly conduct whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fellow students, indulging in rowdy or undisciplined activities which cause or likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof in a fresher or a junior student asking the student to do any act or perform something which such student will not do in of shame or embarrassment so as adversely

affect the physique or psyche of a fresher or a junior student. Generally offence of ragging is committed through verbal or physical assault.

### **Consequences of Ragging**

The evil effect of ragging has led to deaths - suicide or otherwise, in many a campus. Even when such extreme consequences do not result, the scar, which it creates in young minds is itself there, for the whole life, affecting mental health, In recent times, harrowing pictures are painted as to the torture and humiliations, both physical and mental, which fresh entrants to institutions have to face under the banner of ragging. Instances are not few where because of such obnoxious treatment, students have fled from institutions and are afraid of coming back. In some cases victims have abandoned studies.

What was intended to be an 'ice - breaker' in good faith and provide untainted fun has now turned out to be acts of physical torture with a sadistic tendency. Drug abuse, violence and indiscipline are also the fallout of this practise. One thing is clear that ragging has crossed all bounds of decency and has entered the arena of physical and mental torture. Therefore, there is imminent need to curb the practice of ragging. Ragging apart from being an offence, is a serious law and order problem, social menace and is a human right violation. It cannot be treated as a mere issue of discipline to be dealt with by the principal of the college alone. It needs to be dealt with iron hands by legislators, Courts and police.

### **Kerala Prohibition of Ragging ACT 1988 and Allied Laws**

The state in order to avert the menace of ragging had enacted Kerala prohibition of a Ragging Act 1988 (the act), which casts a duty on the Head of Institution to prohibit ragging.

'Ragging' has been defined in section 2(b) of the Act as " doing any act, by disorderly conduct to a student of an educational institution, which causes or is likely to cause physical or psychologic harm or raising apprehension or fear or shame or embarrassment to that student and includes (1) teasing abusing or playing practical jokes on, or causing hurt to, such students, or (ii) asking a student to do 4 act or perform something which such students will not, in the ordinary course, willingly, do". Ragging within or outside any educational institution is prohibited under the Act (section 3)

## **Punishment**

As per section 4, of what whoever commits, participates in , abets or propagates ragging shall be punished with imprisonment for a term which may extend to two years and shall also be liable to fine which may extend to ten thousand rupees. Section 5 | provides for dismissal of a student for a period of three years upon conviction and during this period he cannot be admitted to any other institution.

Apart from provisions of the Act, the students who commit the offence of ragging 4 shall also liable to be punished for other offences under Indian Penal Code that they commit at the time of offence. As per relevant UGC regulations formulated in 2009, a § student who is found guilty of committing ragging can be expelled from the institution and will be debarred from taking admission in another institution. A fine up to Rs. 2,50,000/- could also be imposed.