

*Department of Civil Engineering*



*HAND BOOK*  
*2016-17*

# Department of Civil Engineering

SAINTGITS COLLEGE OF ENGINEERING

Kottukulam Hills

Pathamuttom P.O

Kottayam

686532

## **PERSONAL DATA**

**Name** :

**Designation** :

**Contact No.** :

**Email Id.** :

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## Civil Engineering – an Overview

Civil Engineering is one of the oldest branches of engineering, the design, construction and maintenance of the physical and naturally built environment, concerned with the overall interface of human created fixed projects with the greater world. Civil Engineering involves the application of Geotechnical Engineering, Structural Engineering, Water-resource Engineering, Environmental Engineering, Transportation Engineering and Construction Engineering to practical aspects. With the advent of modern age, the new technologies were absorbed which led to the unprecedented growth of this magnificent field of Engineering.

## Department in a Glance

The Department of Civil Engineering pulls out all stops to create outstanding engineers – with advanced teaching techniques and learning aids for undergraduate students and state of the art research facilities for post-graduate students. Students are not only made experts in technical aspects, but also in interpersonal skills, a vital ingredient to excel in this fast-paced world.

## Growth Chart

SAINTGITS College of Engineering was fortunate to foster the Department of Civil Engineering from the year 2004 onwards with 28 souls on-board. The growth rate of the department was phenomenal which now holds an intake capacity of 120 students. The Eight semester course spans four years integrated with theoretical and practical sessions. M.Tech course in Geomechanics and Structures were added to the arsenal in 2010 with an intake capacity of 18 and currently with 24 students. M.Tech course in Structural Engineering and Construction Management with an intake capacity of 24 students were added in the year 2014.

# Vision, Mission, PEO's & Program Outcomes

## Vision

Emerge as a centre of excellence in Civil Engineering education.

## Mission

Develop Civil Engineers with commendable knowledge, innovative ideas and leadership qualities, who can appropriate technology and contribute efficiently to the industry and research.

## Programme Educational Objectives

PEO1: To prepare graduates to satisfy the requirements of their employers for professional practice in Civil Engineering thereby serving the needs of society and profession.

PEO 2: To prepare graduates to take up post graduate studies/research.

PEO 3: To prepare graduates for professional advancement and business leadership.

## Strength

<b>B.Tech Students</b>	437	S <sub>1</sub> S <sub>2</sub> - 126	S <sub>3</sub> S <sub>4</sub> - 126	S <sub>5</sub> S <sub>6</sub> - 124	S <sub>7</sub> S <sub>8</sub> - 61
<b>M.Tech Students</b>	81	S <sub>1</sub> S <sub>2</sub> - 37	S <sub>3</sub> S <sub>4</sub> - 44		
<b>Faculty</b>		Prof. - 4	Asst. Prof. - 31		
<b>Lab Staff</b>	6				

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## Teaching Faculty

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Name	Contact Number	e-mail
Dr. M C Philipose	9946449179	<a href="mailto:principalce@saintgits.org">principalce@saintgits.org</a>
Prof. P Eapen Sakaria	9496591586	<a href="mailto:eapen.sakaria@saintgits.org">eapen.sakaria@saintgits.org</a>
Hari G	9447097042	<a href="mailto:hari.g@saintgits.org">hari.g@saintgits.org</a>
Dr. Sinu Philip Varghese		<a href="mailto:sinu.pv@saintgits.org">sinu.pv@saintgits.org</a>
Cherian C K	9846922255	<a href="mailto:cherian.c@saintgits.org">cherian.c@saintgits.org</a>
Milu Mary Jacob	9495235119	<a href="mailto:milu.mary@saintgits.org">milu.mary@saintgits.org</a>
Hashifa Hassan P	9495324324	<a href="mailto:vincy.koshy@saintgits.org">vincy.koshy@saintgits.org</a>
Vincy Koshy	9895385076	<a href="mailto:hashifa.hassan@saintgits.org">hashifa.hassan@saintgits.org</a>
Swapna Thomas	9447127380	<a href="mailto:swapna.thomas@saintgits.org">swapna.thomas@saintgits.org</a>
Ajesh K K	9847181979	<a href="mailto:ajesh.k@saintgits.org">ajesh.k@saintgits.org</a>
Sindhu A R	9495931676	<a href="mailto:sindhu.a@saintgits.org">sindhu.a@saintgits.org</a>
Afia S Hameed	9495008494	<a href="mailto:afia.s@saintgits.org">afia.s@saintgits.org</a>
Sunitha A Daniel	9495644910	<a href="mailto:sunitha.a@saintgits.org">sunitha.a@saintgits.org</a>
Dipty Sarin Jacob	9447601959	<a href="mailto:dipty.sarin@saintgits.org">dipty.sarin@saintgits.org</a>
Sneha M Varghese	9447795034	<a href="mailto:sneha.varghese@saintgits.org">sneha.varghese@saintgits.org</a>
Joe G Philip	9400317030	<a href="mailto:joe.philip@saintgits.org">joe.philip@saintgits.org</a>
Shyla Joseph	9497286152	<a href="mailto:shyla.joseph@saintgits.org">shyla.joseph@saintgits.org</a>
Arun G Sankar	9446534675	<a href="mailto:arun.g@saintgits.org">arun.g@saintgits.org</a>
Pavan Kumar C	9497327445	<a href="mailto:pavan.kumar@saintgits.org">pavan.kumar@saintgits.org</a>
Vivek Philip	9496591004	<a href="mailto:vivek.philip@saintgits.org">vivek.philip@saintgits.org</a>
Minu Antony	9447779655	<a href="mailto:minu.antony@saintgits.org">minu.antony@saintgits.org</a>
Nirmal John Joy	9995013513	<a href="mailto:nirmal.john@saintgits.org">nirmal.john@saintgits.org</a>
Lakshmi P	9544972795	<a href="mailto:lakshmi.prasad@saintgits.org">lakshmi.prasad@saintgits.org</a>
Pinky Merin Philip	8547536377	<a href="mailto:pinky.merin@saintgits.org">pinky.merin@saintgits.org</a>
Gopika Moorthy	9495905402	<a href="mailto:gopika.moorthy@saintgits.org">gopika.moorthy@saintgits.org</a>
Nimiya Rose Joshua	9747047763	<a href="mailto:nimiya.rose@saintgits.org">nimiya.rose@saintgits.org</a>
Sanju Mary Sobychen	9447149158	<a href="mailto:sanju.mary@saintgits.org">sanju.mary@saintgits.org</a>
Bennet A Ipe	9746332859	<a href="mailto:bennet.a@saintgits.org">bennet.a@saintgits.org</a>
Jyothis George	9497321689	<a href="mailto:jyothis.george@saintgits.org">jyothis.george@saintgits.org</a>
Gopika Raveendran	9496848843	<a href="mailto:gopika.raveendran@saintgits.org">gopika.raveendran@saintgits.org</a>
Ancy Mathew	9496266359	<a href="mailto:ancy.mathew@saintgits.org">ancy.mathew@saintgits.org</a>
Vishnu M Prakash	9995366761	<a href="mailto:vishnu.mp@saintgits.org">vishnu.mp@saintgits.org</a>
Jiss K Abraham	9447657524	<a href="mailto:jiss.k@saintgits.org">jiss.k@saintgits.org</a>
Nithin Raj	9946064872	<a href="mailto:nithin.raj@saintgits.org">nithin.raj@saintgits.org</a>
Surya J Varma	8593859494	<a href="mailto:surya.varma@saintgits.org">surya.varma@saintgits.org</a>

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## Technical Staff

Name	Contact Number	email
<b>Abin C Abraham</b>	9744997271	<a href="mailto:abin.c@saintgits.org">abin.c@saintgits.org</a>
<b>Jojo Thomas</b>	9847116126	<a href="mailto:jojo.thomas@saintgits.org">jojo.thomas@saintgits.org</a>
<b>Kurian Varghese</b>	9496159042	<a href="mailto:kurian.varghese@saintgits.org">kurian.varghese@saintgits.org</a>
<b>NeethaBabu</b>	9747296060	<a href="mailto:neetha.babu@saintgits.org">neetha.babu@saintgits.org</a>
<b>Rajesh Kumar A R</b>	9747490319	<a href="mailto:rajeshkumar.ar@saintgits.org">rajeshkumar.ar@saintgits.org</a>
<b>Smitha Mol K S</b>	9847911407	<a href="mailto:smithamol.ks@saintgits.org">smithamol.ks@saintgits.org</a>

## Technical Facilities

Lab	Faculty-in-Charge	Instructor
<b>Basic Civil Engineering Lab</b>	Ajesh K Kottuppillil	Rajesh Kumar
<b>Surveying Lab</b>	Shyla Joseph A	Kurian Varghese
<b>Material Testing Lab 1 /Strength of Materials Lab</b>	Sneha M Varghese	Abin C Abraham
<b>Geotechnical Engineering Lab/Advanced Geotechnical Lab</b>	Joe G Philip	Jojo Thomas
<b>Material Testing Lab 2 /Concrete Lab</b>	Bennet A Ipe	Smithamol K S
<b>Civil Design Studio</b>	Sunitha A Daniel	IT Manager
<b>Transportation Engineering Lab</b>	Nithin Raj	Neetha Babu
<b>Environmental Engineering Lab</b>	Arun G Sankar	Neetha Babu
<b>Structural Engineering Lab</b>	Vivek Philip	Abin C Abraham

## Staff Rooms & Class Rooms

Staff Room	Room No.
Main Staff Room	VB 202
Staff Room I	VB 403

Classroom Layout	
Batch	Classroom
S <sub>1</sub> /S <sub>2</sub> B.Tech	VB 101
	VB 201
S <sub>3</sub> /S <sub>4</sub> B.Tech	VB 401
	VB 402
S <sub>5</sub> /S <sub>6</sub> B.Tech	VB 301
	VB 302
S <sub>7</sub> /S <sub>8</sub> B.Tech	VB 501
S <sub>1</sub> /S <sub>2</sub> M.Tech GS	VB 304
S <sub>3</sub> /S <sub>4</sub> M.Tech GS	VB 503
S <sub>1</sub> /S <sub>2</sub> M.Tech SECM	VB 106
S <sub>3</sub> /S <sub>4</sub> M.Tech SECM	VB 505

### Legend

VB: VISHWESHARAI AH BLOCK,

GS: GEOMECHANICS & STRUCTURES

SECM: STRUCTURAL ENGINEERING & CONSTRUCTION MANAGEMENT



## Class Advisory System

Each class is assigned a Chief Staff Advisor (CSA) or Teacher in Charge. To give individual attention and help the students in matter of personal and academic importance, a class of 60 is again divided into three equal groups of 20 each under a Staff Advisor. The students can seek for both personal and academic advices of Staff Advisors. Besides, one student in elected to represent the class.

### **Role of Chief Staff Advisor**

1. Co-ordination of the staff advisors for maintaining the ISO files.
2. Consolidation of fortnightly attendance and publishing the same.
3. Reporting the activities and progress of the class to the respective Head of the Department.
4. Intimating the parents about the result of Series Examinations, University Examinations, PTS meetings etc.
5. Class monitoring, in order to get the feedback from the students regarding the various subjects taught during the semester.
6. Should monitor and consolidate the duty leaves for internal programme and forward the same to the Principal.

### **Role of Staff Advisor**

1. A friend, philosopher and advisor to the student.
2. Meeting the student once in a fortnight atleast in normal circumstances.
3. Interaction with parents on academic and non-academic matters pertaining to the students in his/her group.
4. Ensuring the attendance of the student in class and general and total behavior including adherence to the dress code.
5. Grievance redressal of the students.
6. Maintenance of the student profile, which include the progress of the student since his/her admittance in the college.
7. Reporting to the Head of the Department in the fortnightly appraisal form for the first and second half of the month.
8. Motivating the students for co-curricular and extra-curricular activities.

9. Identifying the strength and weakness of students and timely action for special attention can be suggested to the Head of the Department.

## Chief Staff Advisors and Advisors

Class	Chief Staff Advisor	Staff Advisors
S <sub>1</sub> /S <sub>2</sub> B.Tech	Milu Mary Jacob	Nithin Raj Shyla Joseph Milu Mary Jacob Arun G Sankar Sunitha Daniel
S <sub>3</sub> /S <sub>4</sub> B.Tech	Ajesh K Kottuppillil	Surya J Varma Bennet A Ipe Nimiya Rose Joshua Ajesh K Kottuppillil Vishnu M Prakash Ancy Mathew
S <sub>5</sub> /S <sub>6</sub> B.Tech	Swapna Thomas	Pinky Merin Philip Pavan Kumar C Dipty Sarin Issac Jiss K Abraham Lakshmi P Jyothis George
S <sub>7</sub> /S <sub>8</sub> B.Tech	Sindhu A R	Sanju Mary Sobichen Gopika Moorthy Nirmal John Joy
S <sub>1</sub> /S <sub>2</sub> M.Tech GS	Gopika Raveendran	
S <sub>3</sub> /S <sub>4</sub> M.Tech GS	Vincy Koshy	
S <sub>1</sub> /S <sub>2</sub> M.Tech SECM	Minu Antony	
S <sub>3</sub> /S <sub>4</sub> M.Tech SECM	Afia S Hameed	

***Role of Class Representatives***

1. Should make sure that the Classroom, Black-Board, Notice board, curtains etc. are maintained properly. Besides, lights and fans should be switched off when not in use.
2. It is the sole responsibility of the representative to report any grievances of the class to the respective staff advisors or the Head of the Department.

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## Department Responsibilities

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<b>PG Coordinator</b>	Joe G Philip
<b>UG Coordinator</b>	C K Cherian
<b>NBA/NAAC Coordinator</b>	Vivek Philip
<b>MGU Exam Cell</b>	Nirmal John Joy Gopika Moorthy
<b>KTU Exam Cell</b>	Dipty Sarin Jacob
<b>QEEE Staff Coordinator</b>	Nimiya Rose Joshuva
<b>ACES Staff Advisor</b>	Sindhu A R
<b>ICI Staff Advisor</b>	Sunitha A Daniel
<b>ISTE Staff Advisor</b>	Sanju M Sobichen
<b>IE (I) Staff Advisor</b>	Jyothis George
<b>Department IT and related</b>	Minu Antony
<b>Departmental Library</b>	Pavan Kumar C
<b>Campus Management Software Department Coordinator</b>	Dipty Sarin Jacob
<b>ISO Coordinator</b>	Sunitha A Daniel
<b>Department Consultancy</b>	Sindhu A R
<b>Department Treasurer</b>	Shyla Joseph
<b>Departmental Meetings – charge / Staff Secretary</b>	Lakshmi P
<b>SCIE Advisor</b>	C K Cherian Ajesh K Kottuppillil
<b>SIRC</b>	Dipty Sarin Jacob
<b>NSS</b>	Pinky Merin Philip Nirmal John Joy
<b>TA coordinator</b>	Nithin Raj
<b>Industry tie-ups</b>	Hari G

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## Associations and Clubs

### **ACES**

The Association of Civil Engineering Students (ACES) has been the pride of the department since its inception in 2006. The association has been instrumental in providing the students an exposure to recent advancements in the area of Civil Engineering. It also provides the students with an opportunity to interact with the industry.

### **ETERNIA'15**

ACES comprises of all Civil Engineering Students, a total of 345 students including both B.tech and M.tech students and all the faculty members of the Department. The Staff –in-Charge of ACES 2015-2016 is Er. Sneha M Varghese and the Core Committee members of ACES included students from final years and committee members from different semesters.

The first grand programme organized by ACES was SPROUT-07 and is being continued as ETERNIA. This year also various activities like technical talk, Eternia 2015, workshop on “Build your bridge in just two days “etc were planned and conducted by ACES.

**Eternia 2015**, National level technical fest of Department of Civil Engineering was conducted on 31<sup>st</sup> July and 1<sup>st</sup> August, 2015. All the students of Civil Engineering Department including B-Tech and M-Tech students participated whole heartedly to make this event a grand success. Almost 350 students worked behind the success of the events. Er. Sneha M Varghese was the Staff Coordinator for Eternia 2015. Mr. Jibin John was elected as the Project Manager of Eternia 2K15, Ms. Asha Mariam Thomas & Mr. Rishikesh V was elected as the Asst.

Project Managers. Mr. Vishnu Vijayappan was elected as Secretary and Mr. Bharath Varma R as Treasurer

### Budget

Eleven events were conducted in Eternia 15. Respective heads were selected for each event and coordination committees. A budget of Rs 77310/- was sanctioned for the technical fest. The budget included Rs 40,000 /- as prize money. The remaining amount was used for the proper conduction of the events.

### Venue and Coordination

The venue and coordination members collected the requirements of each committee members and classrooms were allocated in the VB block and seminar hall and cultural centre in AB block. The venue and coordination members planned each of the events efficiently without much clashing of events.

### OVERVIEW

Students from different colleges were welcomed to the technical fest Eternia. Common inauguration of association of different departments was organised at the College Amphi theatre on 31<sup>st</sup>July 2015. The Chief guest for the common inauguration was Brahmos Airspace General Manager Retired commander Vinod Sankar.

The response of students from both inside and outside the college was marvelous. And the events were conducted as planned earlier in a systematic manner.

# RULES AND REGULATIONS

## **College Timings**

Hour	First	Second	Break	Third	Fourth
Timing	9:00 – 9:50 AM	9:50 – 10:40 AM	10:40 – 10:50 AM	10:50 – 11:40 AM	11:40 – 12:30 PM
Monday – Thursday: Lunch Break -----12:30 to 1:30 PM-----Lunch Break					
Hour	Fifth	Sixth	Break	Seventh	
Timing	1:30 – 2:20 PM	2:20 – 3:10 PM	3:10 – 3:20 PM	3:20 – 4:10 PM	
Friday: Lunch Break-----12:30 – 2:00 PM-----Lunch Break					
Hour	Fifth	Sixth		Seventh	
Timing	2:00 – 2:50 PM	2:50 – 3:40 PM	No Break	3:40 – 4:25 PM	

Note: First and Third Saturday would be working day to facilitate tutorial sessions and also for interaction with parents.

## **College Uniform**

Students are to be strictly in the college uniform on the specified days.

Also it is compulsory for all students to wear SAINTGITS Lanyard with identity card while they are in the campus and surrender on request.

Boys: Slack Shirt – Pants with shirt tucked in and black coloured belt.

Girls: Slack Shirt- Jacket- Pants

Girls and Boys: Black Shoe with Blue Socks

During Laboratory session, students should wear lab coats, dark blue in colour.

## **Complaints & Grievances**

Students can discuss with their staff advisors any matter relating to the academic and co-curricular activity. General grievances are to be brought before the HOD and Principal by the Class representative.

## **Mobile Phones**

As per the regulations of Govt. of Kerala, Mobile phones are banned in the campus. If found in possession, the gadget will be confiscated and a fine of Rs.1000/- will be imposed on the student

## **ATTENDANCE AND LEAVE OF ABSENCE**

Attendance will be marked at the beginning of each period by the teacher engaging the class. Students should occupy their respective seats before attendance is taken. They should not leave or enter the class room without the permission of the faculty member engaging the class and students will not get attendance if they are late more than five minutes.

No student shall absent himself/herself from a class without leave. Absences for a period or more in a session will cause loss of absence for the session.

Duty Leave:

1. Internal Programmes. Students can avail a maximum of 5 full days or 35 working hours. Prior permission has to be obtained from the respective Faculty in charge and CSA. The sessional will be calculated excluding the duty leave.
2. External Programmes. For attending to Official assignments permitted, recommended & sanctioned by the respective CSA, respective Staff in Charge & Head of the department respectively, students can avail additional leave. The completely filled Leave form\*should be submitted to the Vice



Principal within a period of Seven working days after availing the respective leave.

Copy of the leave form is available in the College Hand Book.

3. Medical Leave. Students availing medical leave during series exams should inform the respective CSA on the date of examination itself. Besides, leave application signed by students, parents, CSA and HOD along with the medical certificate from a doctor not below the rank of an Asst. Surgeon should be submitted to the Vice Principal within 5 working days from the completion of the whole examination.

### **LABORATORIES & WORKSHOP-RULES**

The student entering the Laboratories and workshop should strictly follow the rules and regulations.

- All to wear tight clothes; yet loose enough to work freely.
- Should wear a short sleeved shop coat [Dark Blue], over the normal dress.
- Use rubber soled closed shoes inside the Laboratories.
- Ensure that your work does not make the floor untidy.
- Make sure that work does not affect the fellow students.
- Never touch moving parts of the machine, and obey the Safety Norms.

### **Instructions to Students appearing for Examinations.**

- Students shall follow the prescribed dress code, and carry with them their college ID cards [also Hall Ticket for University Exam] on all days of examinations.
- Students shall occupy their seats in the examination room at least 10 (ten) minutes before the commencement of the examination.

- Late comers, reaching the examination room not later than 30 minutes from the commencement of the exam, may be admitted to the examination. However, they are not entitled to any extra time.
- No student shall be allowed to leave the exam room before the expiry of the duration of the exam.
- Every student shall take with him/her essential articles such as pen, pencil, eraser and calculator. Exchange by students of any article in the examination room is not allowed.
- No student shall take mobile phone with him/her to the examination room even in the switched off mode. Only non-programmable calculators and officially approved Tables are to be used in the examination.
- Before entering the examination hall, every student shall make sure that there is no malpractice-oriented material with him/her or any inscriptions on the palm, calculator etc. and that his/her seat, and desk and the floor directly below are free of any exam related material/writing.
- Senior members of the faculty are authorized to check the conduct of the students in the examination rooms and implement the above guidelines strictly.
- Roll No. /Reg.No. should be furnished only in the space provided on the facing sheet.
- Any malpractice in the examination will invite stern and deterrent punishment.
- Since the University examinations for odd semesters are scheduled only in October/November and for even semester only in April/May, students have to wait for one year for a

supplementary paper. In their best interests, students have to therefore prepare sufficiently early and perform well in the first chance itself in the university examinations.

## MG UNIVERSITY REGULATIONS (2010 Admission Onwards)

### 1. Duration of the course

- a. The course for B.Tech Degree shall extend over a period of four academic years comprising 8 semesters. The first and second semester is combined and each semester from third onwards shall cover the group of subjects as given in the scheme of studies and examinations.
- b. Each semester shall normally comprise of minimum 90 working days.

### 2. Assessment in Theory & Practical subjects

Sessional marks for Theory, Drawing, Workshop, Laboratories and Practical's will be awarded by the teaching faculty based on day to day performance of the students. The allocation of the sessionals marks for the individual subjects shall be on the following basis.

The marks allotted for internal continuous assessment and Semester-End university examinations shall be 50 marks and 100 marks respectively with a maximum of 150 marks for each theory subject.

The weightage to award internal continuous assessment marks should be as follows:

Theory Subjects		Practical Subjects	
Attendance	20%	Attendance	20%
Assignments	20%	Regular Classwork/Drawing/Workshop Records and Class Performance	50%
Tests	60%	Tests	60%

The sessionals marks allotted for attendance shall be awarded in direct proportion to the percentage of attendance secured by the

candidate in the subject. Full credit for regularity in the class can be given only if the candidate has secured minimum 90% attendance in the subject

### **3. University Examination**

There shall be University Examinations at the end of the first academic year and at the end of the every semester. From 2007 admission onwards examination shall be conducted only as per the following schedule.

April /May: S1/ S2, S4, S6 & S8

October /November S3, S5 & S7

### **4. Eligibility for appearing examination is subject to the following**

- a. The student should have successfully completed the course work for the year/semester.
- b. The student should have not less than 75% attendance for the particular year in the case of I & II semesters combined or the particular semesters in the case of highest semesters.

### **5. Attendance**

A candidate shall be permitted to appear for the semester end examinations only if he/she satisfies the following requirements:

- a) He/she must secure not less than 75% attendance in the total number of working periods during the first year and in each semester thereafter; and shall be physically present for a minimum of 65% of the total working periods. In addition, he/she also shall be physically present in at least 20% of total attendance for each subject

- b) He/she must earn a progress certificate from the head of the institution stating that he/she has satisfactorily completed the course of study prescribed in the semester as required by these regulations.
- c) His/her conduct must be satisfactory

It shall be open to the Vice Chancellor to grant condonation of shortage of attendance on the recommendation of the head of the institution in accordance with the following norms.

- The shortage shall not be more than 10%
- Shortage shall not be condoned more than twice during the entire course
- Candidate who is no eligible for condonation of shortage of attendance shall repeat the semester

#### **6. Pattern of Questions for Semester –End Examinations of :**

Theory subjects

The question papers of semester –end examinations of theory subjects shall be able to perform achievement testing of the students in an effective manner .the question paper shall be prepared

- a) Covering all sections of the course syllabus
- b) Unambiguous and free from any defect/errors
- c) Emphasizing knowledge testing, problem solving & quantitative methods
- d) Containing adequate data/other information on the problem assigned
- e) Having clear and complete instructions to the candidate.

Duration of Semester –End examinations will be 3 hours. The pattern of question paper for theory subjects shall be as follows:

**PART A:**

Short answer questions (one/two questions)

*5 x 3 marks=15 marks*

All questions are compulsory. There should be atleast one question from each module.

**PART B:**

Analytical/ Problem solving questions

*5 x 5marks=25 marks*

All questions are compulsory. There should be atleast one question from each module.

**PART C:**

Descriptive/Analytical/Problem solving questions

*5 x 12marks=60 marks*

Two questions from each module with choice to answer one question.

*Maximum Total Marks: 100*

**7. Credit System**

Each subject shall have a certain number of cells assigned to it depending upon the academic load and the nature and importance of the subject. The credit associated with each subject will be shown in the prescribed scheme and syllabi. Each course shall have an integer number of credits, which reflects its weightage.

**8. Grading**

The university shall award the letter grade to students based on the marks secured by them in both internal assessment and Semester-End

examinations taken together in the subjects registered. Each letter grade indicates a qualitative assessment of student's performance and is associated with a specific number of grade points. The grading system along with the grade points for each grade, applicable to passed candidates is shown below. All passed candidates will be allotted a grade S, A, B, C, D, or E according to the total marks secured by him/her.

If a candidate does not pass a subject as per the conditions given in Section (9), he/she will be assigned an unsatisfactory grade "U" irrespective of his/her total marks. If a student does not pass a subject in two attempts, the maximum grade he/she can get is 'C' when he/she passes the subject in any subsequent examination, whatever be the marks scored by him/her.

A student is considered to have completed a subject successfully and earned the credits if he/she secures a letter grade other than "U" in that course. Letter grade "U" has zero grade point and the candidate has to write the examination to improve the grade. A student's performance is measured by the number of credits that he/she has earned and by the cumulative grade point average (CGPA) maintained by him/her.

Total Marks Scored by the passed candidate	Corresponding Grade Allotted	Grade Points
136-150	S	10
121-135	A	8.5
106-120	B	7.5
96-105	C	6.5
86-95	D	5.5
75-85	E	4.5



## 9. Semester Grade Point Average (SGPA) and Cumulative

### Grade Point Average (CGPA)

- a) A Semester Grade Point Average(SGPA) shall be computed for all the students for each semester ,as follows:

$$\text{SGPA} =$$

Where ,n is the number of subjects registered during the semester ,CI is the number of credits allotted to the subject as per scheme, and GI is the grade points corresponding to the grade awarded to the student for the subject.

- b) A Cumulative Grade Point Average(CGPA) shall be computed for all the students for each semester ,as follows:

$$\text{CGPA} =$$

Where, m is the number of courses registered upto that semester ,CI is the number of credits allotted to the subject as per the scheme,G<sub>1</sub> is the grade points corresponding to the grade awarded to the student for the subject.

An up-to-date assessment of overall performance of a student is obtained by calculating CGPA. CGPA is weighted average of the grade points obtained in all the subjects registered by the students since he entered the B.Tech course.

- c) Both the SGPA and CGPA shall be rounded off to the second place of decimal and recorded as such for ease of presentation. Whenever the CGPAs are to be used for the purpose of determining the merit ranking in a group of students, only the rounded off values shall be made use of.

## **10. Eligibility for Promotion to Higher Semester –**

Procedure for completing the course

- a) A student who has secured 75% of attendance and has exhibited satisfactory progress in the class will be eligible for promotion to the next higher semester.
- b) However, before being admitted to the VIII semester classes, the student should have passed in all subjects in the combined first and second semester examination in full.

**Note: As this is an academic prerequisite, no exemption should be granted in this case, whatever are the causes.**

A candidate shall complete the programme and pass all examinations within Eight (8) years since his first admission to the B.Tech programme.

## **11. Additional requirements for the degree**

In the addition to the requirement prescribed for the award of B.Tech. degree, student must complete compulsory social service for a total duration of 15 days during 3<sup>rd</sup> to 7<sup>th</sup> semesters of the course, A record is to be kept showing the details of social service activities undertaken and it should be approved by the Staff Advisor. Head of Institution should verify this compulsory requirement before permitting the student to register for the eighth semester.

Students are expected to undertake industrial training(s) of total 10 days minimum duration or industrial visits (to minimum 2 industries) for studying about the industries of importance to the branch concerned during 4<sup>th</sup> to 7<sup>th</sup> semester. Students may also undertake an educational tour, the tour period shall be considered as part of the working periods of a semester. The tour maybe conducted during the

vacation / holidays taking not more than 3 working days, combined with the vacation / holidays if the branch concerned. Faculty members for visiting industries (at least two) of importance to the branch concerned. Faculty members shall accompany the students for the industrial visits/ educational tour. Each student shall submit detailed bound report(s) of the training/ visit/ tour to the Head of Department within two weeks after the programme. These bound report (s), signed by the staff advisor or faculty in charge of tour/ training/ visit and by the head of department, shall also be brought during the final Viva-Voce

## **12. Electives**

All students shall choose four elective subjects, one in the sixth, one in the seventh and two in eighth semesters from a set of elective subjects prescribed in the syllabus and offered by the institution. There should be at least 25% students of the class for an elective subject to be offered. However, any student having a CGPA of not less than 7.5 shall be permitted to select an elective of his/her choice and register under a faculty subject to the permission from the faculty and Head of Department. The student will have to study this subject on his own (self-study mode) or the classes of this subject shall be taken during off-hours.

A student can opt for interdisciplinary electives, termed as global electives in the syllabus, maximum one during 8<sup>th</sup> semesters subject to the permission from both Heads of Departments and the faculty handling the elective subject. Minimum number of students for a global elective shall be 15 and maximum 60. New electives may be introduced according to the needs of emerging fields in technology.

The name of the elective and its syllabus should be approved by the university before the subject is offered as an elective.

### **13. Classification of Successful Candidates**

- a) A candidate who qualifies for the degree, passing all the subjects of the eight semesters within 5 academic years after the commencement of his course of study and secures not less than a CGPA of 8.0 of all the semesters shall be declared to have passed the B.Tech degree examination in First Class with Honours.
- b) A candidate who qualifies for the degree, passing all the subjects of the eight semesters within 5 academic years after the commencement of his course of study and secures not less than a CGPA of 6.5 of all the semesters shall be declared to have passed the B.Tech degree examination in First Class.
- c) All other candidates who qualify for the degree passing all the subjects of the eight semesters and covered as per Sections 22 (a) and (b) shall be declared to have passes the B.Tech degree examination in second class.

## MG UNIVERSITY REGULATIONS (Prior to 2010 Admission)

### 1. Duration of the course

- a. The course for B.Tech. Degree shall extend over a period of four academic years comprising 8 semesters. The first and second semester is combined and each semester from third semester onwards shall cover the groups of subjects as given in the scheme of studies and examinations.
- b. Each semester shall normally comprise of 16 weeks.

### 2. Sessional work

Sessional marks for Theory, Drawing, Workshop, Laboratories and Practicals will be awarded by the teaching faculty based on the day to day performance of the students. The allocation of the sessional marks for the individual subjects shall be on the following basis.

The sessional marks allotted for attendance (10) shall be awarded in direct proportion to the percentage of the attendance secured by the candidate in the subject.

The sessional marks allotted for Test is 30. The College will conduct two series tests and students are advised to score high that the sessional mark is in direct proportion to the percentage score secured by the candidate in the two tests.

### 3. University Examination

There shall be University Examinations at the end of the first academic year and at the end of the every semester. From 2007 admission onwards examination shall be conducted only as per the following schedule.

April / May: S1 / S2, S4, S6 & S8

October / November: S3, S5 & S7

**4. Eligibility for appearing examination is subject to the following:**

- a. The student should have successfully completed the course work for the year / semester.
- b. The student should have not less than 75% attendance for the particular year in the case of I&II semesters combined or the particular semester in the case of highest semesters.

**5. Condonation of attendance:**

A student is eligible for condonation of attendance (once in case of I&II semesters combined or twice in the case of higher semesters) subject to the conditions given below in the entire course

- i. His conduct must be satisfactory.
- ii. The shortage shall not be more than 10% of actual working days.
- iii. Condonation is given only on medical grounds.

The condonation shall be granted by the Vice Chancellor on the recommendation of the principal subject to rules and procedures prescribed by the University from time to time.

**6. Repetition of the course work**

A student who is not eligible for condonation of shortage of attendance shall repeat the course in full including the sessional work in the immediate chance. The sessional marks earned during repetition of alone will be counted in such cases. A student can repeat the course only once during the course. For repeating the course in any of the above cases the character and conduct of the student must be satisfactory as certified by the Head of the Institution.

## **7. Minimum for a pass**

A candidate shall be declared to have passed in any individual subject of a semester/ year examination, if he secures not less than 40% marks for the subject in University examination and not less than 50% of the total marks of the subject, i.e., candidate who passes in all the subjects of a semester examination shall be declared to have passed the examination in full.

## **8. Promotion to higher semesters**

A student is eligible to be promoted to the higher semesters subject to the following conditions

- i. He should have successfully completed the lower semester.
- ii. He should have obtained 75% attendance in the lower semester or obtained condonation as per the University rules.
- iii. A student shall be permitted to register for any semester examination only if he had registered for the previous semester examination.

## **9. Classification of successful candidates**

- a. A candidate who qualifies for the Degree passing all the semester examinations within five academic year (10 consecutive semesters) after commencement of his course of study and has secured not less than 75% of the aggregate of the total marks in all the semesters shall be declared to have passed B.Tech Examination in first Class with Distinction.
- b. A candidate who qualifies for the Degree passing all the semester examinations within five academic years (10 consecutive semesters) after the commencement of his course and has secured not less than 60% of the aggregate of the

marks in all the 8 semesters shall be declared to have passed B.Tech Examination in First Class.

- c. All other successful candidates shall be declared to have passed B.Tech Degree Examination Second Class
- d. Successful candidate who complete the Examination in four academic years (8 consecutive semesters and chances) after the commencement of the course of study shall be ranked branch-wise on the basis of the aggregate of the total marks for all the eight semester.



## KERALA TECHNOLOGICAL UNIVERSITY

CET Campus, Thiruvananthapuram, Kerala-695016

2015 Admission Onwards

### 1. Examination

- a) 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.
- b. Students, who have completed a course but could not write the end semester examination for valid reasons like illness or personal exigencies, are allowed to write the supplementary examination or the end semester examination at the next opportunity and earn the credits without having to register for the course again provided they meet other eligibility criteria.
- c) The main eligibility criteria for the end semester examination are attendance in the course, internal marks and no pending disciplinary y 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.
- d) 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.

## 2. Eligibility for Award of Degree

The award of B. Tech. / B. Tech. (Honours) degree shall be based on the recommendation of the Academic Committee and the approval of the Board of Governors and in accordance with the academic regulations, if any, issued for the said purpose by the University.

### Award of B. Tech. Degree

A student will be eligible for the award of B. Tech. Degree of the University on satisfying the following requirements.

- I. Earned credits for all the core courses and the Project.
- II. Earned the required minimum credits as specified in the curriculum for the branch of study.
- III. No pending disciplinary action.

## 3. Fee charged by the University

Fee charged for the programme shall be decided by the University from time to time and informed to all concerned for compliance.

## 4. Discipline of the student – Action against breach of discipline

Every college shall have a Student's Welfare Committee and a Disciplinary Action Committee, constituted by the Principal of the college. Each college should have a Grievance Redressal and Appeals Committee constituted by the Principal to address the grievances of

the students and to consider their appeals on any decisions made by the college. Details on the constitution and terms of reference are outlined.

#### 5. Breach of guidelines and unfair practices in Examinations

These are viewed seriously and appropriate actions are to be taken by the colleges.

##### a. Course Completion and Earning of Credits

Students registered and later enrolled for a course have to attend the course regularly and meet the attendance rules of the university [RU-2] and appear for all the internal evaluation procedures for the completion of the course. Credits for the course are earned only on getting a pass grade in the composite evaluation.

##### b. Summer 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. Details of summer courses planned will be announced by the colleges after the declaration of the even semester results. Final examination for summer courses will be conducted by the University. Based on the availability of faculty and the number of students opting for courses, it will be the prerogative of the colleges to decide on the summer courses to be offered.

#### Options for the fifth and higher semesters

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. A separate registration format will be available for this. This option is available in all semesters.

#### c. Academic Assessment/Evaluation

##### Academic Evaluation of Courses

University follows a continuous academic evaluation procedure.

Academic evaluation procedure and corresponding weights are as follows:-

- d. 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. End Semester examination carrying 100 marks.

(Conducted by the University)

All the above evaluations are mandatory requirements to earn credits. Students who have missed either the first or the second test can register with the consent of the faculty and the Head of the Department (HOD) concerned for a retest which shall be conducted soon after the completion of the second test, but before the end semester examination. The re-test will cover both first and second test course plans. Those who have missed both the tests are not eligible to appear for the end semester examination. However if one misses both tests due to medical reasons or other personal exigencies, based on genuine evidence, a single test of 2 hour duration for 40 marks will be conducted covering the whole syllabus, before the end semester

examinations. Decision on this will be taken by the Principal and verified by the external academic auditor.

- e. 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.

- f. 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 [RU-5].

- g. 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. The seminar will be evaluated based on RU-6)

#### h. 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.

##### i) 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

#### j) Eligibility to Continue

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. In odd semesters if this requirement is not met, the student is to be forewarned and allowed to continue to the next even semester. However at the end of even semesters this requirement will be strictly implemented. Summer courses are offered to those who do not satisfy this norm after the 2nd as well as the 4th semesters. Students who do not meet this requirement are not permitted to register for new courses in the higher semesters. They have to register for the failed courses in normal semesters in which they are offered subject to the limitations imposed by the ordinances and course timetable.

Action plan, for dealing with course arrears in theory courses at the end of each semester to continue with the programme, is given below. Faculty advisors shall monitor advice and support the students in this. Students should be informed about the minimum cumulative credits requirement to register for higher semester courses.

#### 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	Notinsisted
Second	23	47	35
Third	24	71	Notinsisted
Fourth	23	94	80
Fifth	23	117	Notinsisted
Sixth	23	140	126
Seventh	22	162	Notinsisted
Eighth	18	180	



k) Eligibility for writing the end semester examination and for grading Students with 45% or more marks in internal assessment in a course shall only be permitted to write the end semester examination in that course. Those with less than 45% internal marks shall be awarded FE grade and have to register for the course again.

A student should have a minimum of 45% marks in the end semester examination to be eligible for grading in a course. Otherwise he/she will be considered to have failed in the course and an F grade will be awarded. Internal marks given to the students who got 45% marks or more in the end semester examination shall be regulated in line with the end semester examination performance. Internal mark percentage shall not exceed 25% over the end semester mark %. (For example if the end semester mark % is 45, then the maximum internal mark % is to be  $45+25 = 70$  %.)

In case the student writes the supplementary examination, the mark got in that will be taken into consideration for regulating the internal marks.

Those who have more than 45% marks in the end semester examination are awarded the grade based on both internal assessment and end semester examination marks. A student earns credits for a course if the grade is P or above.

l) Grades and Grade Points

Grades and Grade Points as per UGC guidelines is to be followed by the University

<b>Grades</b>	<b>Grade Point(GP)</b>	<b>% of Total Marks obtained in the course</b>
O(Outstanding)	10	90%andabove
A+(Excellent)	9	85%andabovebutlessthan90%
A(Very Good)	8	80%andabovebutlessthan85%
B+(Good)	7	70%andabovebutlessthan80%
B(Above Average)	6	60%andabovebutlessthan70%
C(Average)	5	50%andabovebutlessthan60%
P(Pass)	4	45%andabovebutlessthan50%
F(Fail)	0	Lessthan45%
FE	0	Failed due to eligibility criteria[7-0]
I		Course Incomplete

SGPA and CGPA are calculated based on the above grading norms and are explained at the end of this document.

#### m) Break of Study

A student may break study for a maximum duration of two semesters, preferably in one academic year, to initiate start-up ventures, product development etc. This is however permitted only on successfully completing the courses listed out in the first four semesters. Request for this with ample evidence to the seriousness of the venture should be forwarded to the college principal for approval. [RU-3]

Break of study on serious health reasons is also permitted with the approval of the college Principal. [RU-3]

All such cases of break of study are to be reported to the University. In both the cases, the maximum duration for completing the B. Tech. programme will still be twelve semesters.

#### n) Revaluation and Grade Improvement

There is no provision for revaluation of the end semester answer books or for improving the grade.

However, the student is permitted to check the answer books of the end semester examination after the results are declared. Any discrepancy in evaluation could be brought to the notice of the teacher concerned who will initiate appropriate action on this. The decision of the Controller of Examination shall be final on this.

#### o) Grade Cards

Students who have written the end semester examination will be given the grade cards for the registered courses, in every semester by the respective colleges. On earning the required credits for the degree, a consolidated grade sheet for the B. Tech programme will be given by the University.

#### p) Academic Discipline and Malpractices in Examinations

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.

The student may appeal to the Grievances and Appeals Committee for a relook on the matter. Based on the committee's report, the Principal shall take a final decision on the matter.

DAC shall be headed by a department head and shall have three other faculty members drawn from different departments as members. In case of malpractices in end semester examinations, the report given by the college DAC and the action taken by the Principal shall be intimated to the Controller of Examination of the University.

#### 6) Amendment to Ordinance/ Regulations/Rules

Notwithstanding all that has been stated above, the University has the right to modify any of the above Ordinance/Rules/regulations from time to time.

#### Attendance

Attendance is marked for each course. While 75% attendance is mandatory for writing the end semester examination in that course, students are expected to have 100% attendance. However under unavoidable circumstances students are permitted to take leave. Leave is normally sanctioned for any approved activity taken up by students outside the college covering sports and other extracurricular activities. Leave is also permitted on medical grounds

or on personal exigencies. Leave of absence for all these is limited to 25% of the academic contact hours for the course.

In case of long illness or major personal tragedies/contingencies the college Principal can relax the minimum attendance requirement to 60%, to write the end semester examination. This is permitted for one or more courses registered in the semester. Principal shall keep all records which led to his decision on attendance, for verification by the Academic Auditor. However this concession is applicable only to any two semesters during the entire programme. In case of prolonged illness, break of study is permitted as mentioned below.

#### Break of Study

A student is permitted to have a break of study.

- i) In case of accident or serious illness needing prolonged hospitalization and rest.
- ii) In case the student has a bright idea and would like to initiate a start-up venture or develop a new product.
- iii) In case of any personal reasons that need a break in study.

For break of study due to illness, student should submit all necessary medical reports together with the recommendation of the doctor treating him giving definite reasons for break of study and its duration. Before joining back the student should submit the fitness certificate from the doctor who treated him.

Students who want to initiate a start-up venture or a product development, have to submit a project report, clearly indicating the purpose, action plan, technical details, funding details and future plans to the college Principal. The Principal shall evaluate the proposal by constituting an expert team consisting of a technocrat and a bank executive and take an appropriate decision based on the team's

recommendation. In the semester system followed by the University, break of study for an academic year is preferred over a semester break.

Students who want a break in study due to personal reasons shall convince the Principal on the genuine need for it by giving authentic evidence for the same.

Addendum:-

### 1. Calculation of SGPA/CGPA

Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) is calculated as follows.

$SGPA = \frac{\sum(C_i \times GP_i)}{\sum C_i}$  where  $C_i$  is the credit assigned for a course and  $GP_i$  is the grade point for that course. Summation is done for all courses registered by the student in the semester. Here the failed courses are also accounted.

$CGPA = \frac{\sum(C_i \times GP_i)}{\sum C_i}$  where  $C_i$  is the credit assigned for a course and  $GP_i$  is the grade point for that course. Summation is done for all courses registered by the student during all the semesters for which the CGPA is needed. Here the failed courses are also accounted. CGPA of all courses passed may also be given.

CGPA for the B. Tech programme is arrived at by considering all course credits that are needed for the degree and their respective grade points.

### 2. Student Activity Points

Activities that a student can engage in and the maximum quantum of points that can be earned from them are listed below.

Code duration	Name of the activity	Max. activity points	Minimum Duration
NA1	NSO	70	<b>Two Semesters</b>
NA2	NCC	70	<b>Two Semesters</b>
NA3	NSS	70	<b>Two Semesters</b>
<b>ii) College Level Activities</b>			
CA1	Active Member/ Office bearer Of Professional Societies (Student Chapters)	30/40	<b>Four Semesters</b>
CA2	Elected Office bearer Of Student forums	30	<b>Two semesters</b>
CA3	Member/Captain- College Athletic/ Games teams	20/30	<b>Two Semesters</b>
CA3	Executive Member of Student Clubs	20	<b>Two Semesters</b>
CA4	Volunteer for important College functions	20	<b>Two Semesters</b>
CA5	Committee member/ Organizer of Tech Fest /Cultural Fest /Conference	20/30	<b>Two Semesters</b>
CA6	Placed within top three in Paper presentation/debate /cultural competitions etc		<b>30</b>
CA7	Placed within top three in State level Sports/Games/		<b>30</b>

Additional 20 points are given for CA3/CA7 if the achievement is at the national level.

<b>EA1</b>	<b>Any Creative Project execution</b>	<b>40</b>
<b>EA2</b>	<b>Awards for Projects</b>	<b>60</b>
<b>EA3</b>	<b>Initiation of Start-ups</b>	<b>60</b>
<b>EA4</b>	<b>Attracted Venture Capital</b>	<b>8</b>
<b>EA5</b>	<b>Filed a Patent</b>	<b>80</b>
<b>EA6</b>	<b>Completed Prototype Development</b>	<b>80</b>
<b>iv)Self Initiatives</b>		
<b>SA1</b>	<b>Attend a National Conference</b>	<b>20</b>
<b>SA2</b>	<b>Attend an Int. National Conference</b>	<b>30</b>
<b>SA3</b>	<b>Published/got an Award for a Technical paper.</b>	<b>30/40</b>
<b>SA4</b>	<b>Organizer of student level Technical Conf/Competition</b>	<b>30</b>
<b>SA5</b>	<b>Foreign language skills</b>	<b>50</b>
<b>SA6</b>	<b>Online courses taken &amp; completed</b>	<b>50</b>



## GATE Coaching

The Graduate Aptitude Test in Engineering (GATE) is an all-Indian examination that primarily tests the comprehensive understanding of various undergraduate subjects in engineering and science. GATE is conducted jointly by the IISc and seven Indian Institutes of Technology (IIT Bombay, IIT Delhi, IIT Guwahati, IIT Kanpur, IIT Kharagpur, IIT Madras and IIT Roorkee) on behalf of the National Coordination Board – GATE, Department of Higher Education, Ministry of Human Resource Development (MHRD), and Government of India. The GATE scores of a candidate the relative performance level of a candidate. The score is used for admission to various post-graduate programmes (e.g. M.E, M.Tech, direct Ph.D.) in Indian higher education institutes with financial assistance provided by MHRD and other Government agencies. The score may also be used by Public sector units for employment screening purposes.

Considering the significance of the examination, the Department is offering GATE coaching to final year and pre-final year students who are interested to appear for the test at a nominal cost.

### **Objectives:**

Following are the objectives of this course

- Motivate the students for self-development and be prepared to take up the challenges in research and development.
- Rallies confidence in appearing technical competitive Examinations.
- Equip students in mounting comprehensive subject knowledge.
- Encourage students to pursue dream specifications.

## **Class-timings**

To clear path for regular functioning of the department, GATE coaching classes are scheduled after class hour (4:30- 5:30PM), every working day for a period of 6 months. The session is expected to begin in the first week of august.

## **Course Fee**

The course fee will be collected considering the attendance of students per session. A fitting remuneration is under consideration for the faculty conducting the session

## **GATE'16 Pattern of Question**

### **General Aptitude Questions**

All the papers will contain few questions that test the General Aptitude (Language and Analytical Skills), apart from the core subject of the paper.

## **XE Paper**

A candidate appearing in the XE paper has to answer the following

1. Section A – Engineering Mathematics (compulsory)
2. GA – General Aptitude (compulsory)
3. Any two of XE sections B to G

The choice of two sections from B to G can be made during the examination after viewing the questions. Only two optional sections can be answered at a time. A candidate wishing to change midway of the examination to another optional section must first choose to deselect one of the previously chosen optional sections (B to G).

## **XL Paper**

A candidate appearing in the XL paper has to answer the following

1. Section H - Chemistry (compulsory)
2. GA – General Aptitude (compulsory)

3. Any two of XL sections I to M
4. A choice of two sections from I to M can be made during the examination after viewing the questions. Only two optional sections can be answered at the candidate. A candidate wishing to change midway of the examination to another optional section must first choose to deselect one of the previously chosen optional sections (I to M).

### **Duration & Examination Type**

The GATE examination consists of a single paper of 3 – hour duration that contains 65 questions carrying a maximum of 100 marks. The question paper will consist of both multiple choice questions (MCQ) and numerical answer type questions. [Click here](#) for the pattern of question papers.

The examination for all the papers will be carried out in an ONLINE Computer Based Test (CBT) mode where the candidates will be shown the questions in a random sequence on a computer screen. The candidates are required to either select the answer (for MCQ type ) or enter the answer for numerical answer type question using a mouse on a virtual keyboard (keyboard of the computer will be enabled). Candidates will be provided with blank paper sheets for rough work and these have to be returned back after the examination. At the end of the 3- hour window, the computer will automatically close the screen from further actions.

**QUALIFIED STUDENTS IN GATE'16**

1. Smruthi Raj
  2. Vishnu Vijayappan
  3. Bharath Varma
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# **SYLLABUS FOR CIVIL ENGINEERING**

## **ENGINEERING MATHEMATICS**

**Linear Algebra:** Matrix algebra, Systems of linear equations, Eigen values and eigenvectors.

**Calculus:** Functions of single variable, Limit, continuity and differentiability, Mean value theorems, Evaluation of definite and improper integrals, Partial derivatives, Total derivative, Maxima and minima, Gradient, Divergence and Curl, Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

**Differential equations:** First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Cauchy's and Euler's equation, Initial and boundary value problems, Laplace transforms, Solutions of one dimensional heat and wave equations and Laplace equation.

**Complex variables:** Analytic functions, Cauchy's integral theorem, Taylor and Laurent series.

**Probability and Statistics:** Definitions of probability and sampling theorems, Conditional probability, Mean, median, mode and standard deviation, Random variables, Poisson, Normal and Binomial distribution.

**Numerical Methods:** Numerical solutions of linear and non-linear algebraic equations Integration by trapezoidal and Simpson's rule, single and multi-step methods for differential equations.

## **STRUCTURAL ENGINEERING**

**Mechanics** : Bending moment and shear force in statically determinate beams. Simple stress and strain relationship: Stress and strain in two dimensions, principal stresses, stress transformation, Mohr's circle . Simple bending theory , flexural and shear stresses , unsymmetrical bending, shear centre. Thin walled pressure vessels, uniform torsion, buckling of column, combined and direct bending stresses.

**Structural Analysis:** Analysis of statically determinate trusses, arches, beams, cables and frames, displacements in statically determinate structures and analysis of statically indeterminate structures by force/energy methods, analysis by displacement methods (slope deflection and moment distribution methods), influence lines for determinate and indeterminate structures. Basic concepts of matrix methods of structural analysis.

**Concrete Structures:** Concrete Technology- properties of concrete, basics of mix design. Concrete design- basic working stress and limit state design concepts, analysis of ultimate load capacity and design of members subjected to flexure, shear, compression and torsion by limit state methods. Basic elements of prestressed concrete, analysis of beam sections at transfer and service loads.

**Steel structures:** Analysis and design of tension and compression members, beams and beam-columns, column bases. Connections- simple and eccentric, beam-column connections, plate girders and trusses. Plastic analysis of beams and frames.

## **GEOTECHNICAL ENGINEERING**

**Soil Mechanics:** Origin of soils, soil classification, three phase system, fundamental definitions, relationship and interrelationships, permeability & seepage, effective stress principle, consolidation, compaction, shear strength.

**Foundation Engineering:** Sub-surface investigations- scope, drilling bore holes, sampling, penetration tests, plate load test. Earth pressure theories, effect of water table, layered soils. Stability of slopes-infinite slopes, finite slopes. Foundation types-foundation design requirements. Shallow foundations - bearing capacity, effect of shape, water table and other factors, stress distribution, settlement analysis in sands & clays. Deep foundations-pile types, dynamic & static formulae, load capacity of piles in sands & clays, negative skin friction.

## **WATER RESOURCES ENGINEERING**

**Fluid Mechanics and Hydraulics:** Properties of fluids, principle of conservation of mass, momentum, energy and corresponding equations, potential flow, applications of momentum and Bernoulli's equation, laminar and turbulent flow, flow in pipes, pipe networks. Concept of boundary layer and its growth. Uniform flow, critical flow and gradually varied flow in channels, specific energy concept, hydraulic jump. Forces on immersed bodies, Flow measurements in channels, tanks and pipes. Dimensional analysis and hydraulic modelling. Kinematics of flow, velocity triangles and specific speed of pumps and turbines.

**Hydrology:** Hydrologic cycle, rainfall, evaporation, infiltration, stage discharge relationships,

Unit hydrographs, flood estimation, reservoir capacity, reservoir and channel routing. Well hydraulics.

**Irrigation:** Duty, delta, estimation of evapo - transpiration. Crop water requirements . Design of: lined and unlined canals, waterways, head works, gravity dams and spillways. Design of weirs on permeable foundation.Types of irrigation system, irrigation methods.Water logging and drainage, sodic soils.

## **ENVIRONMENTAL ENGINEERING**

**Water requirements :** Quality standards, basic unit processes and operations for water treatment. Drinking water standards, water requirements, basic unit operations and unit processes for surface water treatment, distribution of water. Sewage and sewerage treatment, quantity and characteristics of wastewater. Primary, secondary and tertiary treatment of wastewater, sludge disposal, effluent discharge standards. Domestic wastewater treatment, quantity of characteristics of domestic wastewater, primary and secondary treatment.Unit operations and unit processes of domestic wastewater, sludge disposal.

**Air pollution:** Types of pollutants, their sources and impacts, air pollution meteorology, air pollution control, air quality standards and limits.



**Municipal Solid Wastes:** Characteristics, generation, collection and transportation of solid wastes, engineered systems for solid waste management (reuse/ recycle, energy recovery, treatment and disposal).

**Noise Pollution:** Impacts of noise, permissible limits of noise pollution, measurement of noise and control of noise pollution.

### **TRANSPORTATION ENGINEERING**

**Highway Planning:** Geometric design of highways, testing and specifications of paving materials, design of flexible and rigid pavements.

**Traffic Engineering:** Traffic characteristics, theory of traffic flow, intersection design, traffic signs and signal design, highway capacity.

### **SURVEYING**

Importance of surveying, principles and classifications, mapping concepts, coordinate system,

map projections, measurements of distance and directions, levelling, theodolite traversing, plane table surveying, errors and adjustments, curves.

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## SRISHTI'16

Srishti 2016– a National Level Technical Project Exhibition and Competition for engineering students was organised by SAINTGITS College of Engineering. College of Engineering has organized its 3<sup>rd</sup> edition of SRISHTI, a technical project exhibition and competition for engineering students on 27-28<sup>th</sup> January 2016. Saintgits Centre for Innovation & Entrepreneurship (SCIE) along with Saintgits Industrial research Center (SIRC), and Saintgits Boot Camp (SBC) conducted **Srishti 2016** as a National level programme , in association with National Instruments (NI) India, Kerala Financial Corporation(KFC), Entrepreneur Development Institute (EDI) India, and Kerala Startup Mission. There were two levels of competitions:

1. College Level: National Level Technical project exhibition & Competition for Engineering College Students.
2. School level: Kerala State Level Robotic Championship for school students.

The aim of Srishti was to promote the innovative and entrepreneurship talents of young engineering students in our nation. Srishti 2016 focused its theme as “Technology for Rural Development” in order to scale and integrate the technologies with the daily lives in rural areas. Nationwide engineering students in various disciplines were competed each other to bag the “Best innovation prize” of Rupees 1 lakh. There are separate prizes for best projects from each discipline, theme and participating institutions. The best project based on Lab VIEW was awarded attractively by our industrial

partner- National Instruments India. Best mentor and popular project were also recognized.

To enhance the critical thinking and creativity in school students, Saintgits Robotics Club in association with IEEE students' chapter conducted project based- hands on training on ROBOTICS to staff and students of various schools in Kerala. A State level robotic championship for schools was held along with Srishti.



Prize distribution of Robotic Championship by Dr. M.C. Philipose, Principal, Saintgits College of Engineering.

### **Inauguration:**

Sri T K Jose IAS, Chairman, Coconut Development Board of India inaugurated the function. The winners of big idea competition were also acknowledged with certificates. Two innovative projects of Mechanical Engineering department of this college “the paddy harvester” and the “Akash” were also released along with the inauguration.



Release of Paddy Harvester by Sri.T K Jose IAS, Cahirman, Coconut  
Development Board of India

Technical Talks:

Srishti 2016 also bridged the gap between academia, industry and the common man through an interactive exchange of technical knowledge and information. To accomplish this objective, the public and the school children throughout Kerala witnessed the project exhibits and the latest technological advancements in the industry. Technical talks and Interactive sessions were delivered to enlighten the budding engineers in the field of Innovation and Healthcare Technologies. The best innovation award was presented by Padmavibhusan Dr.G. Madhavan Nair, the former Chairman of Indian Space Research Organisation and Secretary to the Department of Space, Government of India .

## **Technical Project Exhibition & Competition:**

There was an overwhelming response from various colleges across the nation with a total count of 62 registered projects for SRISHTI for Civil Engineering. Out of which, 13 projects were selected for competing on the days of SRISHTI.

### **Projects Evaluation**

A panel of judges chaired by Er. Bijoy Abraham, Consulting Engineering, Frames Consulting, Asst. Prof. Vivek Philip, Civil Department, Saintgits College of Engineering and Dr. A Praveen, Asst. Prof. (CE), RIT Pampady visited the exhibition stalls and evaluated the projects in two phases to select The Best Innovation award worth Rs. One Lakh and Best projects from six technical streams worth Rs 12000/- each and most popular project worth Rs 10000/-. The visitors were given the privilege to elect the most popular award. The best project based on “DO ENGINEERING using Lab VIEW” was awarded attractively by our industrial partner- National Instruments India worth Rs. 12000/-.

### **List of Civil Engineering Projects Selected For Final Exhibition**

- 1. *Plastic Concrete Composite Hollow Block.***
- 2. *In-Vessel Composting Toilet.***
- 3. *Emphatic Vitalization of Air Pollution.***
- 4. *Electro coagulation Method for Waste Water Treatment.***
- 5. *Use of Waste Plastic as an Additive in Stone Mastic Asphalt.***
- 6. *GIS Based Secondary Storage and Transportation System Planning for Municipal Solid Waste.***
- 7. *Usefulness of Rambutaan Rind Powder in Water Purification.***
- 8. *Solar Roadway.***

- 9. *Development of Self-Compacting Green Concrete Using Potable Water Treatment Sludge as a Low Cost Self-Curing Agent.***
- 10. *Multi-Purpose Automatic Tiles Laying Machine.***
- 11. *Water Sustainable House.***
- 12. *Renovation and Remodeling Of Nagampadom Bus Stand.***
- 13. *Pipe Line Distribution In Arimpoor Panchayath.***

## Placement

Here at SAINTGITS, we provide rigorous training for the students to transform them to remarkable Engineers with a positive outlook to the society and technical world. The trainings the students undergo are planned and administered with these objectives in focus. SAINTGITS is getting unwavering support from the Industry in accomplishing these through continuous Industry- Institute Interaction.

The SAINTGITS Corporate Relations& Placement Division operates from the Administrative Block of SAINTGITS College of Engineering, led by the Head-Corporate Relations and supported by 4- member Corporate Relations & Placement Team.

All the students, during their entire duration of the course, will have an hour every week, being set apart for internal career skills training. The students are administered mock tests in Aptitude, GD and interviews, along with the usual trainings in life skills and career skills. Further, the students will undergo intense training under skilled trainers in all aspects of recruitment process during their pre- final year. SAINTGITS arranges services of reputed trainers from training institutions including Konfidence, TIME, SB Global, Turning Point, Sapient, Glixter, Sensorium, les mentors, Wings to Win et al. SAINGITS is acclaimed as most campus-friendly by all known recruiters for its warmth & commendable placement facilities. It has customized GD

rooms, Corporate discussion room, seminar halls, Cultural centre, Interview cubicles and Lecture Halls suitable for conducting the recruitment process.

Placement Team consists of :

Name	Responsibility & E-mail	Contact Number
<b>Mr Antony Joseph</b>	Head - Corporate Relations Email: <a href="mailto:antony.joseph@saintgits.org">antony.joseph@saintgits.org</a>	+91-9746474288 0481-3290307 (Dir)
<b>Ms Sonia Mathew</b>	Manager - Corporate Relations E-Mail: <a href="mailto:sonia.mathew@saintgits.org">sonia.mathew@saintgits.org</a>	+91 - 9895756679 0481-3290307 (Dir)
<b>Mr Arun P</b>	Officer - Corporate Relations E-Mail: <a href="mailto:arun.p@saintgits.org">arun.p@saintgits.org</a>	08129400674 0481-3290307 (off)
<b>Ms Resmi Susan Philip</b>	Executive- Corporate Relations E-Mail: <a href="mailto:resmi.susan@saintgits.org">resmi.susan@saintgits.org</a>	9497089925

### In-Campus Placement Achievement Board

Sl No	Name	Company
1	NAMITHA SOSA JACOB	Infosys
2	ROHITA RACHEL EAPEN	Infosys
3	SNEHA RACHEL CHERIAN	Infosys
4	SWATHY S	Infosys

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