

കൊച്ചി ശാസ്ത്ര സാങ്കേതിക സർവ്വകലാശാല  
**COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY**



COCHIN UNIVERSITY P.O.,  
COCHIN - 682 022  
KERALA, S. INDIA

No.Conf.II/2941/1/2019 (4)

Dated: 06.09.2019

**NOTIFICATION**

In exercise of the powers conferred by Section 24(ii) read with Section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 11.04.2019 resolved to approve the revised Regulations and scheme of Examinations of I to VIII semesters of various B.Tech programmes run in School of Engineering/CUCEK/KMSME with effect from 2019 admissions as in Appendix.

1. B.Tech Degree programme in Civil Engineering
2. B.Tech Degree programme in Mechanical Engineering
3. B.Tech Degree programme in Safety and Fire Engineering
4. B.Tech Degree programme in Information Technology
5. B.Tech Degree programme in Computer Science and Engineering
6. B.Tech Degree programme in Electronics and Communication Engineering
7. B.Tech Degree programme in Electrical and Electronics Engineering
8. B.Tech Degree programme in Marine Engineering

The current complex system of awarding moderation of marks in semester end examinations for B.Tech be replaced with a new system where the student stands chance to get more marks. In this new system all B.Tech theory paper semester end examinations will have questions for 72 marks for every student to attempt and answer. The maximum marks awarded will be limited to 60 marks.

In the case of KMSME B.Tech programme which has a different question paper format there will be questions for 75 marks for every student to attempt and answer. The maximum marks awarded will be limited to 60 marks.

The Syndicate at its meetings held on 20.07.2019 vide item No.666.15 considered and approved the above resolution of the Academic Council.

  
**REGISTRAR**

To

1. Dr. K.S. Beena, Dean, Faculty of Engineering and Professor, Division of Civil Engineering, School of Engineering, CUSAT, Kochi -22
2. The Principal/Director of CUCEK/SOE/KMSME
3. The Heads of all Divisions in School of Engineering/CUCEK
4. The Controller of Examinations/Joint Registrar (Academic)/Assistant Registrar (Academic)
5. Academic A,C/Exam 'A'/Exam F/G/I/J/K/L/P/R/Exam Confidential Sections
6. Day File/Stock File/File Copy

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## **REGULATIONS**

**for the**

**B. Tech. Degree Programmes (except Marine Engineering)  
offered under Faculty of Engineering**

**(With effect from 2019 Admissions)**

**COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY  
COCHIN – 682 022**

## **REGULATIONS FOR B. Tech. DEGREE PROGRAMMES UNDER FACULTY OF ENGINEERING**

The following regulations are made applicable to all the B Tech. programmes offered by the University under Faculty of Engineering except Marine Engineering with effect from the academic year 2019-20.

### **1. B Tech. Programme**

The duration of the B Tech. programme shall be eight semesters spanning over four academic years. Each semester shall consist of 15 weeks.

#### **1.1 Branch**

- a) Civil Engineering
- b) Computer Science and Engineering
- c) Electrical and Electronics Engineering
- d) Electronics and Communication Engineering
- e) Information Technology
- f) Mechanical Engineering
- g) Safety and Fire Engineering

#### **1.2 Structure of the B Tech. Programme**

1.2.1 The programme of instruction will consist of the following:

- a) General (common) core courses comprising basic sciences, mathematics, and basic engineering;
- b) Engineering core courses introducing the student to the foundations of engineering in the respective branch;
- c) Elective courses enabling the student to opt and undergo a set of courses of interest to him/her;
- d) Professional practice including project, seminar, and industrial training; and
- e) Humanities courses on soft skills.

1.2.2. Every branch of the B Tech. programme will have a curriculum and syllabus for the courses approved by the Academic Council.

1.2.3. The B Tech. programmes offered by the University Departments/Schools/Cochin University College of Engineering, Kuttanad shall follow the credit system.

1.2.4. The curriculum of any branch of the B Tech. programme shall have a total of 160 credits as minimum.

## **REGULATIONS FOR B.Tech DEGREE PROGRAMMES UNDER FACULTY OF ENGINEERING**

The following regulations are made applicable to B.Tech programme in Marine Engineering in the University under Faculty of Engineering with effect from the academic year 2019-20.

### **1. B.Tech Programme**

The duration of the B.Tech course in Marine Engineering shall be eight semesters spanning over four academic years. Each semester shall consist of 18 weeks except 7<sup>th</sup> semester. 7<sup>th</sup> semester consist of 26 weeks.

#### **1.1 Structure of the B. Tech. programme**

1.1.1 The programme of instruction will consist of the following:

- i) General (common) core courses comprising basic sciences, mathematics and basic engineering
- ii) Engineering core courses introducing the student to the foundations of engineering in the Marine Engineering;
- iii) Elective courses enabling the student to opt and undergo a set of courses of interest to him/ her;
- iv) Professional practice including project, seminar, and industrial training and
- v) Humanities courses on Communication Skills and Environmental Studies.

1.1.2. The B. Tech. Marine Engineering programme will have a curriculum and syllabus for the course approved by the Academic Council.

1.1.3. The B.Tech programme in Marine Engineering offered by the University shall follow the credit system.

1.1.4. The curriculum of any branch of the B. Tech. Marine Engineering shall have a minimum total of 172 credits.

### **1.2 Course Registration**

It is mandatory for the students to register for the courses in each semester.

Before registration, the students should

- a) Clear all dues including any fees to be paid and should not have any disciplinary issues pending.
- b) Meet the requirements regarding the minimum number of credits for promotion stipulated in clause 1.9.

The dates for registration will be announced by the School in the academic calendar. Late registration will be allowed up to 7 working days from the commencement of the semester with late registration fee.

### 1.3 Mode of Evaluation

1.3.1. The performance of the students in theory courses will be evaluated based on continuous assessment and semester end examination. In the case of practical courses, the evaluation will be based on continuous assessment and semester end assessment which will be carried out internally.

1.3.2. For theory courses, there will be 40% weightage for internal assessment and 60% weightage for semester end examination. For practical courses, continuous assessment and semester end assessment will carry 50% weightage each.

1.3.3. In theory courses, the assessment pattern will be as follows:

#### **Continuous assessment:**

1. I Periodical Test – Maximum marks: 12.5
2. II Periodical Test – Maximum marks: 12.5
3. Assignments - Maximum marks: 10
4. Attendance – Maximum marks: 5

**The Semester End Examination** shall be of 3 hours duration.

At the end of the semester, semester examination will be conducted in all the theory courses offered in the semester and it will be of three hours duration unless otherwise specified. The Controller of Examinations will make necessary arrangements for setting the question papers and valuation of answer books for the semester end examination of theory courses.

Each question will carry 15 marks and the student can attend 5 questions for 75 marks. *The maximum mark that can be awarded for a Semester End Examination (SEE) will be only 60, even though the questions are for 75 marks.*

1.3.4. For each practical course, the assessment pattern will be as follows:

50% marks is earmarked for Continuous Evaluation, and 50% marks for Semester End Examination. The Semester End Examination to be conducted by a minimum of two examiners, one not below the rank of an Associate Professor. A candidate shall secure a minimum of 50% marks in the aggregate and 40% minimum in the Semester End Examination for a pass.

#### **1. Continuous assessment : 25 marks**

For continuous assessment, the marks may be awarded on the basis of the performance of the student in the laboratory sessions. The break-up of marks for continuous assessment of laboratory courses shall be:

- a) Practical records/Outputs: 10 marks
- b) Lab work: 10 marks
- c) Attendance: 5 marks

#### **2. Semester end assessment: 25 marks**

The semester end assessment will consist of an examination and a viva voce.

The semester end assessment for the laboratory courses shall be conducted internally by the department with at least two faculty members as examiners. One of the examiners for conducting the semester end laboratory examination shall be at the level of Associate Professor or above in the regular cadre.

1.3.5. In the case of project work, the project guide concerned shall make the continuous assessment. A committee consisting of the Project Coordinator (nominated by the Head of the Department / Division), project guide, and at least one senior faculty member at the level of Associate Professor or above will carry out the final review.

The weightages for the reviews shall be as follows:

Continuous assessment: 40 percent

Project Report : 20 percent

Final review: 40 percent

1.3.6. The Viva-voce examination at the end of VIII Semester will be conducted by a panel of three examiners consisting of the Head of the Department or his/her nominee and one senior faculty at the level of Associate Professor or above of the Department and one external expert.

1.3.7. A candidate shall not be allowed to improve the continuous assessment marks in theory / laboratory courses. A candidate who desires to improve his/her marks in the semester end examination in theory courses shall be permitted to do so in the next available chance. This facility will be available only once for a theory course.

#### **1.4 Course completion and earning of credits.**

Students registered for a course have to attend the course regularly and meet the attendance rules of the university and appear for all the internal evaluation procedures for the completion of the course. However, earning of credits is only on completion of the semester examination and on getting a pass grade. Students, who have completed a course, but could not write the semester examination for valid reasons, are permitted to write the semester examination at the next opportunity and earn the credits without undergoing the course again.

#### **1.5 Eligibility to appear for the Semester End Examination**

1.5.1 A candidate who has fulfilled the following conditions shall be deemed to have satisfied the requirements for completion of a semester.

Ideally every student is expected to attend all classes and earn 100% attendance. However, in order to allow provision for certain unavoidable reasons such as medical / personal grounds / participation in sports, the student is expected to earn a minimum of 75% attendance. Therefore, he/she shall secure not less than 75% of overall attendance in that semester taking into account the total number of days in all courses attended by the candidate as against the total number of days in all courses offered during that particular semester.

1.5.2 The Head of the School shall have the power to condone shortage of attendance up to 5 percent (between less than 75% and 70%) in a particular semester due to medical reasons (hospitalization / accident / specific illness) duly verified and recommended by the Course in Charge and on production of medical certificate from a registered medical practitioner endorsed by the University Medical Officer and on payment of the required fee. However such condonation for shortage of attendance shall be given only twice during the entire duration of the B.Tech programme.

1.5.3 The Vice Chancellor shall have the power to condone shortage of attendance up to 10 percent (between less than 70% and 65%) in a particular semester due to medical reasons (hospitalization / accident / specific illness) duly verified and recommended by the Head of the School and on production of Medical certificate from a registered medical practitioner endorsed by the University Medical Officer and on payment of the required fee. However such condonation for shortage of attendance shall be given only twice during the entire duration of the B.Tech programme.

1.5.4 Candidates who secure less than 65% overall attendance will not be permitted to write the Semester End Examinations and are not permitted to go to next /subsequent semester. They are required to repeat the incomplete semester in the next academic year.

### **1.6 Eligibility to write the Supplementary examination**

Supplementary examinations for a particular semester will be conducted along with the regular examination of the next semester.

Failed candidates and those who could not write the semester examination due to health reasons or other contingencies that are approved by the Head of the School can register for the supplementary examination. Those who wish to improve their performance in the semester end examinations can also register for the same, subject to the provisions of clause 1.3.7. Grades awarded in the supplementary examination will be taken as semester grades in these subjects and will be based on the semester examination grading pattern in that subject. In the case of candidates appearing for improvement of marks, the higher mark obtained will be considered for the purpose of grading.

### **1.7. Revaluation**

A candidate can apply for revaluation of his/her semester end examination answer paper in a theory course, within 2 weeks from the declaration of results, on payment of a prescribed fee along with prescribed application to the Controller of Examinations through the Head of School. The Controller of Examination will arrange for the revaluation and the results will be intimated to the candidate concerned through the Head of the School. Revaluation is not permitted for practical courses, seminar and project work.

### **1.8. Pass requirements**

A candidate has to obtain a minimum of 50 percent marks for continuous assessment and semester end examination put together with a minimum of 40 percent marks in the semester end examination for a pass in theory and laboratory courses.

### **1.9 Promotion to Higher Semesters**

Promotion to the V<sup>th</sup> semester and VII<sup>th</sup> semester shall be subject to the following conditions:

Promotion to	Minimum number of credits to be earned
V Semester	30 out of 60 credits of Semesters I, II, & III
VII Semester	55 out of 106 credits of Semesters I to V

A student will be given one regular chance and one supplementary chance for the semester end examination of I<sup>st</sup> and II<sup>nd</sup> semesters for considering the promotion to V<sup>th</sup> semester and one regular



chance and one supplementary chance for semester end examinations of III<sup>rd</sup> and IV<sup>th</sup> semesters for considering the promotion to the VII<sup>th</sup> semester.

### 1.10 Grading

1.10.1. Grades shall be awarded to the students in each course based on the total marks obtained in continuous assessment and the semester end examination and as per the provisions of clause 1.3.1.

The grading pattern shall be as follows:

Marks obtained (Percentage)	Grade	Grade points
90 to 100	S	10
80-90	A	9
70-80	B	8
60-70	C	7
50-60	D	6
Less than 50	F	0

Note:- Where X-Y range denotes 'X' inclusive and 'Y' exclusive.

1.10.2. A student is considered to have credited a course or earned credits in respect of a course if he/she secures a grade other than F for that course.

### 1.10.3. Grade Point Average.

The academic performance of a student in a semester is indicated by the Semester Grade Point Average (SGPA).

$$SGPA = \frac{G_1C_1 + G_2C_2 + G_3C_3 + \dots + G_nC_n}{C_1 + C_2 + C_3 + \dots + C_n}$$

Where 'G' refers to the grade point and 'C' refers to the credit value of corresponding course undergone by the student.

### 1.10.4. Grade Card

The Grade Card issued at the end of the semester to each student by the Controller of Examinations, will contain the following:

- The code, title, number of credits of each course registered in the semester,
- The letter grade obtained,
- The total number of credits earned by the student upto the end of that semester and
- SGPA & CGPA.

### 1.10.5. Classification

The classification based on CGPA is as follows:

CGPA 8 and above : First Class with distinction

CGPA 6.5 and above, but less than 8 : First Class

CGPA 6 and above, but less than 6.5 : Second Class.

### 1.10.6. Conversion of CGPA to Percentage marks

The following formula shall be used to convert the SGPA/CGPA obtained by a student to percentage marks.

$$\text{Percentage marks} = (\text{SGPA/CGPA} - 0.5) \times 10$$

### **1.11 Faculty Advisor**

To help the students in planning their courses of study and for general advice on the academic programme, the Head of the Department of the student will attach a certain number of students to a teacher of the Department who shall function as Faculty Advisor for those students throughout their period of study. Such Faculty Advisor shall advise the students and monitor the courses taken by the students, check the attendance and progress of the students attached to him / her and counsel them periodically. If necessary, the Faculty Advisor may also discuss with or inform the parents about the progress / performance of the students concerned.

### **1.12 Class Committee**

A class committee consists of teachers of the class concerned, student representatives and a chairperson who does not handle any subject for the class. It is like the 'Quality Circle' more commonly used in industries), with the overall goal of improving the teaching-learning process. The functions of the class committee include:

- Solving problems experienced by students in the classroom and in the laboratories in consultation with the Course in Charge/ Director.
- Clarifying the Regulations of the degree programme and the details of rules therein.
- Informing the student representatives the academic schedule including the dates of assessments and the syllabus coverage for each assessment.
- Informing the student representatives the details of Regulations regarding weightage used for each assessment.
- Discussing in the class committee meeting the breakup of marks for each experiment / exercise / module of work, in case of practical course (laboratory / drawing / project work / seminar, etc.) and informing the students.
- Analysing the performance of the students of the class after each test and finding ways and means of improving the performance of the students.
- Identifying the students who are low achievers or weak in their subjects if any, and requesting the teachers concerned to provide some additional help or guidance or coaching to such students.

The class committee is normally constituted by the Head of the Department. The class committee shall be constituted within a week from the date of commencement of a semester. At least 3 student-representatives from the respective class (usually 3 boys and 1 girl) shall be included in the class committee. The student representatives shall be nominated on the basis of their academic performance since the First Semester of the B.Tech programme. In the case of First and Second semesters, the rank obtained in the Common Admission Test (CAT) shall be the criterion for nominating the student representatives. The Chairperson of the class committee may invite the Faculty Advisor(s), Course in Charge and the Head of the Department to the meeting of the class committee. The chairperson of the class committee is required to prepare the minutes of every meeting, submit the same to the Head of the Division within two days of the meeting and arrange to circulate the same among students concerned and teachers. If there are some points in the minutes requiring action by the University the same shall be brought to the attention of the Director and the Registrar.

The first meeting of the class committee shall be held within fifteen days from the date of commencement of the semester. The nature and weightage of internal assessments shall be discussed in the first meeting, within the framework of the Regulations and the same shall be communicated to the students. Two or three subsequent meetings in a semester may be held at suitable intervals. During these meetings the student members representing the entire class, shall meaningfully interact and express their opinions and suggestions of the class students to improve the effectiveness of the teaching-learning process.

### **1.13 Discipline**

Every student is required to observe discipline and decorous behavior both inside and outside the campus and refrain from any activity which may tarnish the image of the university. Any act of indiscipline, misbehavior including unfair practice in examinations will be referred to the authorities of the University that will make a detailed enquiry on the matter and decide on the course of action to be taken.

### **1.14 Amendment to Regulations**

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

## B.TECH DEGREE COURSE

### Scheme of Examinations (2019 admissions)

#### SEMESTER I

Code No.	Subject	L Hrs/Wk	T Hrs/Wk	P/D Hrs/ Wk	C	Marks		Total
						CA	SEE	
19-208-0101	Mathematics – I	4	1	0	3	40	60	100
19-208-0102	Engineering Physics	4	0	0	3	40	60	100
19-208-0103	Engineering Chemistry	4	0	0	3	40	60	100
19-208-0104	Engineering Mechanics	4	1	0	3	40	60	100
19-208-0105	Basic Electrical Engineering	4	0	0	3	40	60	100
19-208-0106	Environmental studies and Technical Communication	4	1	0	3	40	60	100
19-208-0107	Electrical Engineering Workshop	0	0	3	1	25	25	50
19-208-0108	Language Lab	0	0	2	1	25	25	50
19-208-0109	NSS/Nature Conservation Activity	0	0	1	0	-	-	-
	<b>TOTAL</b>	<b>24</b>	<b>3</b>	<b>6</b>	<b>20</b>			

**CA** – Continuous Assessment, **SEE** –Semester End Examination

#### SEMESTER II

Code No.	Subject	L Hrs/Wk	T Hrs/ Wk	P/D Hrs/ Wk	C	Marks		Total
						CA	SEE	
19-208-0201	Mathematics – II	4	1		3	40	60	100
19-208-0202	Applied Thermodynamics	4	1		3	40	60	100
19-208-0203	Engineering Graphics	3	1		3	40	60	100
19-208-0204	Basic Electronics and measurements	4	0		3	40	60	100
19-208-0205	Computer Programming	4	0		3	40	60	100
19-208-0206	Mechanics of solids	4	1		3	40	60	100
19-208-0207	Mechanical Engineering Workshop			3	1	25	25	50
19-208-0208	Computer Programming Laboratory			3	1	25	25	50
	<b>TOTAL</b>	<b>23</b>	<b>4</b>	<b>6</b>	<b>20</b>			

## B.TECH DEGREE COURSE IN MARINE ENGINEERING

### Scheme of Examinations (2019 admissions)

#### SEMESTER III

Code No.	Subject	L Hrs/Wk	T Hrs/ Wk	P/D Hrs/ Wk	C	Marks		Total
						CA	SEE	
19-208-0301	Mathematics – III	4	1	0	3	40	60	100
19-208-0302	Electrical Technology	4	1	0	3	40	60	100
19-208-0303	Production Technology	3	1	0	3	40	60	100
19-208-0304	Marine Electronics	3	1	0	3	40	60	100
19-208-0305	Fluid Mechanics	4	1	0	3	40	60	100
19-208-0306	Machine Drawing	3	1	0	3	40	60	100
19-208-0307	Strength of Materials Lab	0	0	3	1	25	25	50
19-208-0308	Workshop Practices	0	0	3	1	25	25	50
	<b>TOTAL</b>	<b>21</b>	<b>6</b>	<b>6</b>	<b>20</b>			

CA – Continuous Assessment, SEE –Semester End Examination

#### SEMESTER IV

Code No.	Subject	L Hrs/Wk	T Hrs/ Wk	P/D Hrs/ Wk	C	Marks		Total
						CA	SEE	
19-208-0401	Mechanics of Machinery	3	1	0	3	40	60	100
19-208-0402	Thermal Engineering & Heat Transfer	3	1	0	3	40	60	100
19-208-0403	Metallurgy & Materials Science	4	0	0	3	40	60	100
19-208-0404	Marine Auxiliary Machinery – I	4		0	3	40	60	100
19-208-0405	Hydraulic Machinery	3	1	0	3	40	60	100
19-208-0406	Seamanship and Navigation	3	0	0	3	40	60	100
19-208-0407	Ship Technology	4	0		3	40	60	100
19-208-0408	Electrical Machines Lab	0	0	3	1	25	25	50
19-208-0409	Boiler Chemistry & Heat Engines Lab	0	0	3	1	25	25	50
	<b>TOTAL</b>	<b>24</b>	<b>3</b>	<b>6</b>	<b>23</b>			

### SEMESTER V

Code No.	Subject	L Hrs/Wk	T Hrs/ Wk	P/D Hrs/ Wk	C	Marks		Total
						CA	SEE	
19-208-0501	Dynamics of Machinery	3	1	0	3	40	60	100
19-208-0502	Marine Boiler and Steam Engineering	3	1	0	3	40	60	100
19-208-0503	Marine Economics and Commercial Geography	3	1	0	3	40	60	100
19-208-0504	Marine Auxiliary Machinery – II	3	1	0	3	40	60	100
19-208-0505	Marine Internal Combustion Engine – I	3	1	0	3	40	60	100
19-208-0506	Marine Engineering Drawing	2	1	3	3	40	60	100
19-208-0507	Naval Architecture – I	3	1	0	3	40	60	100
19-208-0508	Fluid Mechanics & Hydraulic Machinery Lab	0	0	3	1	25	25	50
19-208-0509	Electronics Lab	0	0	3	1	25	25	50
	<b>TOTAL</b>	<b>20</b>	<b>7</b>	<b>9</b>	<b>23</b>			

### SEMESTER VI

Code No.	Subject	L Hrs/Wk	T Hrs/ Wk	P/D Hrs/ Wk	C	Marks		Total
						CA	SEE	
19-208-0601	Management Science	3	1	0	3	40	60	100
19-208-0602	Marine Electrical Technology	3	1	0	3	40	60	100
19-208-0603	Ship fire Prevention and Control	3	1	0	3	40	60	100
19-208-0604	Marine Refrigeration and Air Conditioning	3	1	0	3	40	60	100
19-208-0605	Marine Internal Combustion Engines – II	3	1	0	3	40	60	100
19-208-0606	Machine Design	3	1	0	3	40	60	100
19-208-0607	Naval Architecture – I	3	1	0	3	40	60	100
19-208-0608	Fire Control Engineering Lab	0	0	3	1	25	25	50
19-208-0609	Mechanical Lab	0	0	3	1	25	25	50
	<b>TOTAL</b>	<b>21</b>	<b>7</b>	<b>6</b>	<b>23</b>			

### SEMESTER VII

Code No.	Subject	L Hrs/Wk	T Hrs/Wk	P/D Hrs/Wk	C	Marks		Total
						CA	SEE	
19-208-0701	Ship in Campus – I	0	0	3	1	50	-	50
19-208-0702	Ship in Campus – II	0	0	8	4	50	-	50
19-208-0703	Ship in Campus – III	0	0	4	2	50	-	50
19-208-0704	Ship in Campus – IV	0	0	6	3	50	-	50
19-208-0705	Ship in Campus – V	0	0	11	5	50	-	50
19-208-0706	Ship in Campus – VI	0	0	7	4	50	-	50
19-208-0707	Ship in Campus – VII	0	0	3	1	50	-	50
<b>TOTAL</b>		<b>0</b>	<b>0</b>	<b>42</b>	<b>20</b>			

### SEMESTER VIII

Code No.	Subject	L Hrs/Wk	T Hrs/Wk	P/D Hrs/Wk	C	Marks		Total
						CA	SEE	
19-208-0801	Safe Watch Keeping and Engine Resource Management	4		0	3	40	60	100
19-208-0802	Ship Operation and Management	4		0	3	40	60	100
19-208-0803	Maritime Statutory Regulations	4			3	40	60	100
19-208-08**	Elective – I	3	1	0	3	40	60	100
19-208-08**	Elective- II	3	1	0	3	40	60	100
19-208-0812	Simulation and Control Lab			3	1	25	25	50
19-208-0813	Seminar	3			2	50	-	50
19-208-0814	Project			10	4	200	-	200
19-208-0815	Viva-voce			0	1		50	50
		<b>21</b>	<b>2</b>	<b>13</b>	<b>23</b>			

#### 19-205-0804 to 0807: **ELECTIVE – I**

- 19-208-0804: Marine Machinery System Design
- 19-208-0805: Marine Control Engg. & Automation
- 19-208-0806: Double Hull Tank Vessels
- 19-208-0807: Cryogenic Engineering

#### 19-208-0808 to 0811: **ELECTIVE – II**

- 19-208-0808: Fluid Circuits and Controls
- 19-208-0809: Hydraulic and Pneumatic Drives
- 19-208-0810: Renewable Energy Sources & Applications
- 19-208-0811: Tribology

