

#### CHILDREN'S EDUCATION SOCIETY (REGD.)

Administrative Office: 1<sup>st</sup> Phase JP Nagar, Bengaluru – 560 078 ②: 080-61754501 – 502 Fax: 080-2654 8658

#### THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi & Approved by A.I.C.T.E. New Delhi
 Bommanahalli, Hosur Road, Bangalore –560068.
 ©: 080 -61754601/602, Fax: 080 – 25730551 E-mail: engprincipal@theoxford.edu

#### DEPARTMENT OF BIOTECHNOLOGY ENGINEERING

#### Department Proceedings of The Meeting Curriculum Delivery & Planning

Date: 07-09-2022

Time:11:00AM

#### Members Present:

1	Dr.B.K.Manjunatha
2	Dr.Valarmathy K
3	Dr.Indulekha
4	Dr.Ajitha
5	Mr.Divakara
6	Ms.Salma Kausar
7	Ms.Aswathy U
8	Dr.Nathiya T
9	Mr.Shambu G

#### AGENDA: -

- 1. Review of previous minutes meeting
- 2. Department Academic Calendar
- 3. Department Time Table
- 4. Course File / Pedagogical Methods
- 5. Value Added Courses; Content beyond syllabus
- 6. Student Centric Methods

- 7. Implementation of OBE Matrix
- 8. Action Plan for Slow Learners and Advanced Learners
- 9. Feedback analysis and Action taken plan

The following agenda was discussed: -

- 1. Dr. B.K.Manjunath, HOD welcomed all the members present.
- 2. The last semester held for 2021-22 even was briefed by HOD. He informed as expected target in results was not satisfied and could have achieved good results, subject faculty to improve the same during the coming academic year 2022-23 ODD.

It was instructed to the faculty that student's performance and subject deliverance must be improved. Also instructed to the faculties to conduct remedial for the weaker students and the concern faculty were informed to take up appropriate measures by adopting innovative pedagogical methods to improve their quality of deliverance in teaching.

#### 3. Academic Calendar:

The HOD briefed the dates for the commencement of ODD semester as per VTU guidelines

The HOD instructed the department coordinator to prepare the draft of the department calendar for the semester activities and advised to submit immediately all the details incorporating all the important academic, department activities & events.

#### 4. Master Time Table:

HOD advised the Time Table Coordinator to prepare a subject proficiency matrix to allocate the subject for the ODD Semester 2022-

#### 5. Course File / Pedagogical Methods:

HOD allotted the subjects to the faculty and asked them to prepare course file for the current semester subject as per the VTU guidelines before the commencement of the semester.

1. The course file / material should contain a copy of university syllabus, students list, attendance register, teacher diary along with lesson plans with pedagogical initiatives, notes and reference books, previous IA question papers and university question papers along with scheme of evaluation and question bank, assignments etc. Many pedagogical methods are adapted by the faculty like chalk and talk, smart board usages, PPTs, Videos, short term courses, seminars, Presentations, etc. are included in the course file.

HOD instructed each faculty that they need to follow VTU guidelines for conducting the Internal Assessments Tests (the CIE question paper, Scheme of Evaluation, Result Analysis.

6. HOD instructed to faculty importance of Cross Cutting Issues in syllabus by giving the awareness of Ethics, Gender, Environment, etc. This needs to be shared with students.

#### 7. Value Added Courses, Content beyond syllabus.

The value-added course to be completed for the academic year 2022-23.

Sl.No.	Name of Add on/ Certificate programs offered	Duration of the Course
1.	Workshop on IPR	30 hrs

#### 8. Feedback analysis and Action taken plan.

The feedback was taken on 'Curriculum' as per the template framed for the academic year 2022-23 odd from the following stakeholders after the 2<sup>nd</sup> IA.

- a) Students
- b) Faculty
- c) Course End Survey / Employer
- d) Course End Survey / Parents
- e) Alumni

The analysis was based on the student's feedback on faculty. The analysis for the feedback is based on the scaling of 1 and 5 and HOD prepared action taken report and submitted to the principal office for further action.

Faculty who secured greater than 90% are to be appreciated and those who scored less than or equal to 75% need to take immediate necessary action. Such faculty need to undergo and enhance training/FDP/Workshop/Seminars etc. to upgrade their skills.

#### 9. Implementation of OBE Matrix

The COs, POs and PSOs of the programs were instructed and taken care in the department and for implementing appropriate pedagogic strategies. The Course outcomes was designed as per the affiliating university prescribed syllabus and by employing Bloom's Taxonomy verbs and levels. It was also informed that all the Courses should have around five course outcomes and these are correlated to the Program Outcomes (POs). The process of mapping of COs prescribed by VTU and POs prescribed by the NBA related for the course.

HOD advised and instructed the faculty that the mapping should be based on the scaling parameter which is as defined by NBA and are as follows: -

"1" – Slight (Low) correlation, "2" – Moderate (Medium) Correlation, "3" – Substantial (High) correlation and "-" indicates there is no correlation. Similarly, COs with PSOs should be mapped to achieve the attainments.

#### **10. Students Centric Methods**

As per the content delivery committee members direction the student's centric methods were incorporated to improve the student's learning ability. HODs advised the faculty to adhere the following methods in the teaching process. Guest Lecture / Expert Talk / Technical Talk/Seminar/Webinar, Hands-on session, Interactive Session, Soft skill training/ Technical Training, Industrial visit/ field visit, Internship, Project, Mini Project & innovative practices.

#### 11. Action Plan for Slow learners and Advanced Learners

As per the content delivery committee members instructions HOD directed the subject faculty that they should conduct remedial classes and mentoring for the slow learners. And, also instruct the advanced learners to participate for the Conferences, Add-on courses, MOOC courses to enrich their subject knowledge in turn to get the university rank.

#### **12. Resolutions**

- 1. HOD instructed to follow the 2018, 2022, 2020 scheme CIE rubrics.
- 2. The approved syllabus is followed.
- 3. HOD instructed all faculty should have their course file ready and checked by HOD before the commencement of the classes.
- 4. Action plan should be submitted one week after this meeting.
- 5. It is decided that all should encourage the students towards more pedagogy initiatives to get better insights in the academics.
- 6. HOD advised to conduct more add on course/industrial visit/workshops to fill the gap and motivate the students regarding this.



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## THE OXFORD COLLEGE OF ENGINEERING

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SLNO.	MOM - No.	ACTION PLANNED	STATUS
i.	3	The Interschip/Field Visit/Project	As planned for the semester all departments conducted the
2	4	Course File / Pestagogical Methods:	As directed it was implemented by all departments
3.	÷	Valuer Added Courses, Context heyned syllebias	As per the plan it was implemented
4	10	Fwillock analysis	Fendback wes taken by all departments during the removes
3.0	11	Implementation of OBE Matrix	ORE Marrix was followed by all departments
6	22	Students Centric Methods	The statlent's sentric methods were incorporated in all departments
10	0	Action Plan for Slow Jearners and Advanced Learners	Reporting classes were conducted for three leaviers & the advanced fearacra.
8.	н	PAC	DAC meeting was conducted before the tegionizing of the intensity in all departments

### ACTION PLAN REPORT (2022-23-EVEN)

Principal

PRINCIPAL The Oxford Ciplege of Engineering Bormanatali, Honor Read Bengalara 560 068

Copy to: The Chairman, The Oxford Educational Institutions All HODE -KIAC



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## ACTION TAKEN REPORT (2022-23 -ODD)

SL.NO.	MOM – No.	ACTION PLANNED	STATUS
1.	5	Course File / Pedagogical Methods:	As directed Pedagogical methods were implemented by all departments.
2.	8	Value Added Courses,As per the plan 9 programsContent beyond syllabusconducted during the odd syllabus	
3.	9	Feedback analysis	Feedback was taken and analysis was done for the 1-5 scaling.
4.	10	Implementation of OBE Matrix	OBE Matrix was implemented and all departments followed it.
5.	11	Students Centric Methods	The student's centric methods were incorporated in all departments.
6.	11	The Internship/Field Visit/Project	All departments had planned for the Internship/Field Visit/Projects and few of them are ongoing.
7.	12	Action Plan for Slow learners and Advanced Learners Plan for Slow learners and Advanced Learners to participate in programmes.	
8.	13	DAC	DAC meeting was conducted before the beginning of the semester in all departments and identified the thrust areas to bridge





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TOCE/EST 27/2022-23

Date: 07Feb: 2023

#### CIRCULAR

#### Sob: Ovrriculum Planning and Delivery Committee Meeting

All HODs are hereby informed to attend a meeting scheduled for the upcoming academic year 2022 -2023 (EVEN) to discuss about Exerctulars activities for all the departments. The Meeting is scheduled on 09<sup>th</sup>Feb 2023 at 12:00km in the Board room, The Oxford College of Englishing, Bengalany.

The agenda for distustion is appointed below. Kindly make it convenient to attend the meeting positively.

- 1. Academic Calendar
- E. Master Time Table
- 3. Course File/Pedagogical Methods
- 4. Value Added Courses, Contant beyond cyllabus
- E. Student Centric Methods
- 6. Mapping of Cos, Pos & PSOs
- T. Feedback analysis and Action taken plan
- 8. Any other points with the permission of the Chair



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TOCE/EST 27/2022-23

Date: 06 Sept. 2022

# CIRCULAR

Sub: Curriculum Planning and Delivery Committee Meeting

All HODs are hereby informed to attend a meeting scheduled for the upcoming academic year 2022 -2023 (ODD) to discuss about Curriculum activities for all the departments. The Meeting is scheduled on 09<sup>th</sup> Sept.2023 at 11:00 am in the Board room, The Oxford College of Engineering, Bengaluru.

The agenda for discussion is appended below. Kindly make it convenient to attend the meeting positively:

- 1. Academic Calendar
- 2. Master Time Table
- 3. Course File/Pedagogical Methods
- 4. Value Added Courses, Content beyond syllabus
- 5. Student Centric Methods
- 6. Mapping of Cos, Pos & PSOs
- 7. Feedback analysis and Action taken plan
- 8. Any other points with the permission of the Chair



# PRINCIPAL The Oxford College of Engineering Bommanahalli, Hosur Road Bengoluru-560 068

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## Copy to

The Chairman, The Oxford Educational Institutions All HODs IQAC

#### CHERNEN'S EDUCATION SOCIETY (READ.)

Administrative Office:

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TOCE/EST/27/2022-23

#### PROCEEDINGS OF THE MEETING Curriculum Delivery Committee

Eliste: 09-02-2023

-Time: 11:00am

Members Present:

101	Dr N Karnun, Primipal, Chairperten.		
02	Dr. E Ch A Naids, Member Securary (RQAC	1	
注意	Dr. Vijaya Kamut - Duan Ambunian	04	Dr.Freeta Charan - Dean Restarch
05	Dr.Mallikarjan - Datay Example	-06	Dr. Marganath D.K. + IHOD - UT
一府	Dr. Mallestaiah T S - HOR3 -CIVIL	08	Dr. M.S.Shmivchar - HOO - MCA
100	Dr. Marja Devi, HOO - DCE	38	Dr. P Gangavathi - HOD -5421
T	Mr. Dhamhan R., Student Messler, M.Tach-Structured Engineering	12	Mr. Producto Rayan, Stocked Member B.E (Mechanical Engineering)
13	Megan Gowda, Student Member MCA	- 141	Ms. Novya, Studiest Menther B.D (Computer Science and Engineering)
15	Ms. Megharaj G Studeot, Member - MBA	16	Darwy Johnson P Studeyt Mercher D.E (Electrical and Electronics Engineering)
T	Mr. Anatha Christidary Parent	10	Nagaraj NL Parent
110	Mr. Marcla Gopal - Industry Expert - MT	20	Dr. Stisten Talstattatx - Academic Experi-ECE
11	Mr. Gastav Mithra - Akarol		

AGENDA: -

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- 6. Student Contric Mathods
- 7. Implementation of OBE Matrix.
- 8. Action Plan for Slove Learners and Advanted Learners
- 9. Feedback analysis and Action taken plan

### The following aganda was discussed: -

- Principal websited all the elembers potent and the resolution planned in the last meeting has been approved for compliance.
- 2. The resolution plasmed in the last meeting has been approved for immediate compliance.
- 3. The but nonserver held for 2022-23 ODD was briefed by principal.

As per the VTU guidance the 1" semester of B.E. was commenced on 30-11-2022, and for 1" semester of PG - MBA, MCA, M.Tech was commenced on 13-02-2023.

He also reviewed the results of CIE and Semaster End Examination for each branch. It was also noted that the expected target in results was not satisfied and could have orbieved good results for which the committee members were advised all HODs and subject faculty to improve the same during the coming souldence year 2022-23 Even.

It was also noted that student's performance and subject deliveration by the faculty must be improved. HODs were advised to conduct remedial for the weaker students and the concern faculty were informed to take up appropriate measures by adopting innovative pedagogical methods to improve their quality of deliverance in teaching.

The Principal directed all HODs to include in the surriculum for the EVEN sementer - the Internation/Field Visit/Project.

#### VIU TOCE Semister 05-06-2023 05-05-2023 IVB.E. 20-03-2025 28-65-2023 VIBE 13-02-3023 13-02-2023 VIII B.E. 25-05-2023 25-05-2023 HB.E. 26-06-2023 26-06-2023 II MBA 17-84-2023 17-04-2023 IV MBA 26-86-202326-06-2023 D MCA 17-04-2023 17-04-2023 IVASCA. 26-06-2023 26-06-2073 H 54 Tech 17-84-2023 11-04-2073 IV M Tech

#### 4. Academic Calendary

The principal briefed the Sullowing down for the commencionent of liven semester as per the VTU guidelines

The Principal instructed the HODs to prepare the department calendar for the persenter activities and HODs were advised to submit incorporating all the important academic activities and events by finalizing the date.

 Muster Time Table: The committee advised HODs to prepare a subject proficiency matrix is par the 2018 scheme and 2021 scherector higher assumers and 2022 schemes for the 1<sup>st</sup> year UG Programme, and prepare the department time table for the EVEN Semister 2022-23. The committee advised MCA 300D to prepare a subject proficiency matrix and allocate the subject for the EVEN Sensence 2022-23 with the 2020 scherov for the Matter of Computer Applications and fourth sensence with the 2018 scherot.

The committee advised MBA HOD to prepare a subject proficiency matrix and allocate the subject for the EVEN Semanter 2022-23 with the 2022 scheme for the Manter of Basiress Administration (MBA) PG Programms and 4th semanter with the 2020 scheme.

The committee advised all HODs of M.Toch Course to prepare a subject proficiency matrix and allocate the subject for the ODD Semester 2022-23 with the 2022 schores for the first year, and second year for 2021 advance of the Master of Technology (M.Tech) PO Programme.

Based on the same, the Time Toble mode to be prepared and HODs were asked to admit the final draft of the Department Time Table and Master Time Table of the department to the principal's office. Mentors were identified for 10-15 students each and it was assigned to off the department faculty and the Mentoring hear are included in all the department Time-table.

6. Course File / Pedagogical Methods: HOEs were immucied to direct the subject faculty to prepary the course file for the current semanter subject as per the VTU guidelines before the commencement of the serverster. The course file should contain a copy of university syllabus, endents list, attendance register, teacher diary along with lesson plans with pedagogical initiatives, enters and reference books, provious CIE question papers and university question papers along with scheree of evaluation and question bank, assignments etc. Many pedagogical methods are adapted by the faculty like shalk and talk, smart beerd usages, PPTs, Videos, short term courses, seminars, Presentations, etc. are included in the course file.

The committee members instructed HODs that they should do a therough check on the portion coverage related to each subject hefore the commencement of each Continuous Internal Agenemiates.

The committee members advised HODs to instruct each faculty to adhere the VTU guidelines for conducting CIE Texts and also advised HODs to have through check on the CIE question paper pattern.

Also, the committee monthers discussed that as por the 2018 scheme, the rubrics for alluminen of marks are 60 marks for Semicitar End Exam (SEE) and 40 marks for Continuous Internal Evaluation (CIE). In 40 marks of Internal Assessment, 30 marks are awarded as the average of 3 littered assessments and 10 marks for the Assignments which are considered awarding for the Evaluation IA marks.

Also, an opportunity can be given to the students who need 1A average in form of improvement test.

And for the 2021 scheme, BIL - First year, the rubrics for allotment of marka is 50% marks for Sometice End Exam (SEE) and 50% marks for Costinuous fotomal Evaluation (CEE).

As parths MCA for 2018 scheme, the robrics for the allownest of marks are 80 merks for Semester flad Exame and 20 marks for Internal texts. With 20 merks for the Internal text, 60% for the average of three internal text marks and 40% for the Antigassunt marks should be considered for averding of the final Internal Text marks of the Master of Computer Applications. And for 2020 scheme. the rubrics for the allotroent of marks are 60% marks for Senester End Examp and 40% marks for Internal tests.

As per the 2020 scheme of MBA, the rabrics for the allotrorest of marks are 60% marks for End Semester Exams and 40% marks for Internal Tests. With 25 marks on the Internal test, average of best of 2 out of 3 IA, 15 marks for Assignments / Presentation / Seminars depending on the aubjects.

As per the 2020 stheme of M.Tech, the robrics for the alkotment of marks are 60% marks for End. Senseter Exams and 40% marks for Internal Tests. With 20 marks on the Internal test, average of 3 IA, and 20 marks for Assignments / Presentation / Seminars depending on the subjects

Faculty were adviced to evaluate the blue books within the stipulated duration and after each internal assessment, the now learners need to be identified for the conduct of bridge courses.

HODs were advised to instruct the subject faculty that they should incorporate pedagogical methods like group discussion, isdustrial visits, MCQs, role play, Quiz, peer to peer learning, brain sterming sensions, model based learning, industrial visits, and FPTs for the better insight of the concepts for better understanding.

- B.E.Honorzi Aa per VTU circular and guidance it was discussed during Hode meeting to give importance and awareness of it E become and motivate the stadents the same. Principal detected to constant the meeting for the same in their respective department.
- A. Principal also suggested the importance of Cross Cutting Issues in syllabor by giving the meareness of Ethics, Gender, Environment, etc. This needs to be shared with faculty and students.
- Value Added Courses, Content beyond syllabors: The corriculum delivery committee discussed the carriculum and decided during the pondemic to plan for the sendemic year 2022-23 to enrich the atodem's knowledge in vacious thrust amas.

SL. NO	Name of Add on /Certificate programs offered	Department	Duration of
1	AWS cloud essential for researchers	CSE	30 hrs.
2	Data Analytica using Power Bi	ISE	28 hrs.
3.	Innovation & Design Thinking Opportunities in the Field of Electrical Design and Drafting	TEE	30 hrs
4	Innovation and Design Thinking Ideas in Gesterbrical Engineering	CV	30 hrs.
5	Design of Fiuld Power Systems and its mulytis	ME	30 hm
ń.	Hands on training Data Analytics using Excel	ECE	30 lus
7	Python Programming using Djangu	вт	30 hm

8	Workshop on Know your intellectual Property Rights	87	30 Ars.
9	Effective Business Communication for indestrial perspectives	MBA	30 les.
th	AWS cloud practitioner certification	MCA	180 bys.
11	Python Programming using Djongn	MT	30 krs

The Committee members neviewed the above-mentioned courses and approved for the same.

## 18. Feedback analysis and Action taken plan.

The feedback committee members are advised to take online feedback on "Curriculum" as per the template framed for the academic year 2022-73 (Even) from the following stateholders after the 2013

a) Studenti

- b) Family
- e) Course End Survey
- d) Program Exit Survey
- e) Alumni
- f) Employers

HODs and Feedback committee exembers are advised to avolyze the outcome based on the student's feedback on facility and should subrait the action plan and the sumo will be discussed. in this next morning. Like family who accound greater than 96% are to be appreciated and these who spercil less than or equal to 75% need to take immediate necessary action. Such faculty word to undergo and orduneer training/FDP/Workshop/Deminars etc. to upgrade their skills.

## 11. Implementation of ORE Matrix

The members welk the decision regarding the COs, POs and PSOs of the programs and forimplementing appropriate pedagogic strategies. Also informed that the Overse outcomes are designed as per the affiliating antiversity presented syllaton and by employing Blanst's tournamy vertex and levels. It was also referenced that all the Chastan have seminal free course enternees and these are correlated to the Program Outcomen (PCho, The members place discussed the process of suspense of COs presented by VTU and POs presented by the NRA related for the course.

100Ds were advired to instring the family that the mapping should be based on the scaling. parameter winds is an dufined by NIIA and are as follows: -

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#### 12. Students Contric Mothests.

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Training, Industrial visit/ field visit, Internation, Project, Mini Project & incovative practices As per the VTU circular students' meeds to be motivated to take up B.E. Bonors assatus with 8.5 CGPA.

#### 13. Action Plan for Slow learners and Advanced Learners

The surricelum delivery committee members instructed HODs to direct the adjoint facely that they should conduct remedial classes and menoring for the alow learners. And, also instruct the advanced learners to participate for the Conferences, Add-on asserses, MODC sources to entitle their subject knowledge in turn to get the aniversity rank

14. DAC: Principal instructed all department Dept Advisory Committee, to conduct the meeting with stabeholders, and identifies the corriculum gap, reviews the stakeholder's remarks, and identifies the timist areas to bridge the gap.

#### 15. Resolutions

- 1. Principal instructed to follow the 2022, 2021, 2020 and 2018 soliteme CIII rubeics.
- 2. The approved milabes is followed.
- Principal advised all faculty should have their course file ready and checked by respective HODs before the commencement of the classes.
- A. Action plan should be submitted one week after this sveeting.
- It is decided that all should encourage the students towards store pedagogy initiatives to get better insights in the academics.
- Principal advined to comduct the bridge course/add on course/industrial visit/workshops to fill the pap.
- 7. Principal instructed to work together for NAAC to also A++ Grade:

PRINCIPAL PRODUIPAL Ine Oxford College of Engineering Borgston-400 008

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TOCE/EST/27/2022-23

# PROCEEDINGS OF THE MEETING **Curriculum Delivery Committee**

Date: 09-09-2022

Time:11:00AM

Members Present:

01	Dr N Kannan, Principal, Chairperson.		
02	Dr. R Ch A Naidu, Member Secretary (IQAC	.)	
03	Dr. Vijaya Kumari – Dean Academics	04	Dr.Preeta Charan - Dean Research
05	Dr.Mallikarjun - Dean Exams	06	Dr. Manjunath B K - HOD - BT
07	Dr. Malleshaiah T S - HOD -CIVIL	08	Dr. M S Shashidhar - HOD - MCA
09	Dr. Manju Devi, HOD - ECE	10	Dr. P Gangavathi - HOD -S&H
11	Mr. Dharshan R, Student Member, M.Tech-Structural Engineering	12	Mr. Prashanth Ranjan, Student Member B.E (Mechanical Engineering)
13	Megan Gowda, Student Member MCA	14	Ms. Navya, Student Member B.E (Computer Science and Engineering)
15	Mr. Megharaj G Student Member - MBA	16	Danny Johnson P Student Member B.E (Electrical and Electronics Engineering)
17	Mr. Anadha Chowdary, Parent	18	Nagaraj NL Parent
19	Mr. Nanda Gopal - Industry Expert - MT	20	Dr. Srinivas Talabattula - Academic Expert-ECE
21	Mr. Gaurav Mishra - Alumní		

## AGENDA: -

- Review of previous minutes meeting L.
- 2. Academic Calendar
- 3. Master Time Table
- Course File / Pedagogical Methods 4.
- 5. Value Added Courses; Content beyond syllabus
- Student Centric Methods 6.
- Implementation of OBE Matrix 7.
- Action Plan for Slow Learners and Advanced Learners 8.
- 9. Feedback analysis and Action taken plan

The following agenda was discussed: -

- Principal welcomed all the members present and the resolution planned in the last meeting has been approved for compliance.
- 2. The last semester held for 2021-22 EVEN was briefed by Principal.

The 2<sup>nd</sup> semester of B.E. was commenced on 19-05-2021 and all 2<sup>nd</sup> semester PG courses - MCA, MBA & MTech was commenced on 10-05-2021 as per the VTU guidelines.

He also reviewed the results of CIE and Semester End Examination for each branch. It was also noted that the expected target in results was not satisfied and could have achieved good results for which the committee members were advised all HODs and subject faculty to improve the same during the coming academic year 2022-23 ODD.

It was also noted that student's performance and subject deliverance by the faculty must be improved.

## 3. Academic Calendar:

The principal briefed the following dates for the commencement of ODD semester as per VTU guidelines.

Sem	TOCE
VII BE	12-09-2022
VBE	17-10-2022
III BE	31-10-2022
IBE	30-11-2022
III MBA, MCA, MTech	28-11-2022
I MBA, MCA, MTech	13-02-2023

 Master Time Table: The committee advised HODs to prepare a subject proficiency matrix as per the 2018 scheme and 2021 scheme for higher semesters and 2022 scheme for the 1<sup>st</sup> year UG Programme, and prepare the department time table for the ODD Semester 2022-23.

The committee advised MCA HOD to prepare a subject proficiency matrix and allocate the subject for the ODD Semester 2022-23 with the 2022 scheme for the Master of Computer Applications and 3rd semester with the 2018 schemes.

The committee advised MBA HOD to prepare a subject proficiency matrix and allocate the subject for the ODD Semester 2022-23 with the 2022 scheme for the Master of Business Administration (MBA) PG Programme and 3rd semester with the 2020 scheme.

The committee advised all HODs of M.Tech Course to prepare a subject proficiency matrix and allocate the subject for the ODD Semester 2022-23 with the 2022 scheme for the first year, and second year for 2021 scheme of the Master of Technology (M.Tech) PG Programme.

Based on the same, the Time Table needs to be prepared and HODs were asked to submit the final draft of the Department wise class Time Table and Master Time Table of the department to the principal's office. Mentors were identified for 10-15 students each and it was assigned to all the department faculty. And the Mentoring hour are included in all the department Time-table.

5. Course File / Pedagogical Methods: HODs were instructed to direct the subject faculty to prepare the course file for the current semester subject as per the VTU guidelines before the commencement of the semester. The course file should contain a copy of university syllabus, students list, attendance register, teacher diary, CO - PO mapping, Content beyond syllabus, along with lesson plans with pedagogical initiatives, notes and reference books, previous IA/CIE question papers and university question papers along with scheme of evaluation and question bank, assignments etc., Many pedagogical methods are adapted by the faculty like chalk and talk, smart board usages, PPTs, Videos, short term courses, seminars, Presentations, etc. are included in the course file.

The committee members instructed HODs that they should do a thorough check on the portion coverage related to each subject before the commencement of each Continuous Internal Evaluation (CIE). After conducting CIE and Evaluation there should be parents' teachers meeting schedule as per TOCE academic calendar of event.

The committee members advised HODs to instruct each faculty to adhere the VTU guidelines for conducting Continuous Internal Evaluation (CIE) and also advised HODs to have through check on the CIE question paper pattern. Scrutiny committee member go through the 2 set of question paper and select one set from the same. After the question paper securitized it is submitted to the Exam Dean.

Also, the committee members discussed that as per the 2018 scheme, 2021 scheme and 2022 scheme the rubrics for allotment of marks.

- 1. 2018 scheme 60 marks for Semester End Exam (SEE) and 40 marks for Continuous Internal Evaluation (CIE). In 40 marks of Internal Assessment, 30 marks are awarded as the average of 3 Internal assessments and 10 marks for the Assignments which are considered awarding for the final IA marks.
- 2. 2021 scheme 50 marks for Semester End Exam (SEE) and 30 marks for Continuous Internal Evaluation (CIE). In 30 marks of Internal Assessment, 30 marks are awarded as the average of 3 Internal assessments and 20 marks for the Assignments, quiz, GD, etc. which are considered awarding for the final IA marks.
- 3. 2022 scheme 50 marks for Semester End Exam (SEE) and 25 marks for Continuous Internal Evaluation (CIE). In 25 marks of Internal Assessment, 25 marks are awarded as the average of 2 Internal assessments and 25 marks for the Assignments, quiz, GD, etc. which are considered awarding for the final IA marks.

Also, an opportunity can be given to the students who need IA average in form of Improvement test.

For the 2021 scheme, BE-First year, the rubrics for allotment of marks is 50% marks for Semester End Exam (SEE) and 50% marks for Continuous Internal Evaluation, Assignments / Presentation / Seminars (CIE).

And for the 2022 scheme, BE- First year, the rubrics for allotment of marks is 50% marks for Semester End Exam (SEE) and 50% marks for Continuous Internal Evaluation, Assignments / Presentation / Seminars (CIE).

As per the MCA for 2018 scheme, the rubrics for the allotment of marks are 80 marks for Semester End Exams and 20 marks for Internal tests. With 20 marks for the Internal test, 60% for the average of three internal test marks and 40% for the Assignment marks should be considered for awarding of the final Internal Test marks of the Master of Computer Applications. And for 2020 scheme, the rubrics for the allotment of marks are 60% marks for Semester End Exams and 40% marks for Internal tests.

As per the 2020 scheme of MBA, the rubrics for the allotment of marks are 60% marks for End Semester Exams and 40% marks for Internal Tests. With 25 marks on the Internal test, average of best of 2 out of 3 IA, 15 marks for Assignments / Presentation / Seminars depending on the subjects. As per the 2020 scheme of MTech, the rubrics for the allotment of marks are 60% marks for End Semester Exams and 40% marks for Internal Tests. With 20 marks on the Internal test, average of 3 IA, and 20 marks for Assignments / Presentation / Seminars depending on the subjects

Faculty were advised to evaluate the blue books within the stipulated duration and after each internal assessment, the slow learners need to be identified for the conduct of bridge courses. HODs were advised to instruct the subject faculty that they should incorporate pedagogical methods like group discussion, Industrial visits, MCQs, role play, Quiz, peer to peer learning, brain storming, model based, Industrial visit, and PPTs for the better insight of the concepts for better understanding.

- B.E Honors: As per VTU circular and guidance it was discussed during Hods meeting to give importance and awareness of B.E honors and motivate the students the same. Principal directed to conduct the meeting for the same in their respective department.
- Cross Cutting Issues: Principal also suggested the importance of Cross Cutting Issues in syllabus by giving the awareness of Ethics, Gender, Environment, etc. This needs to be shared with faculty and students.
- Value Added Courses, Content beyond syllabus: The curriculum delivery committee discussed the curriculum and decided during the academic year 2022-23 to enrich the student's knowledge in various thrust areas.

SI.No.	Name of Add on/ Certificate programs offered	Department	Duration of the Course
1.	Skill development for higher studies	CSE	30 hrs

2.	Hands on training of PCB design	EEE	30 hrs
3.	IOT for real time applications	ISE	30 hrs
4.	Workshop on Entrepreneurship skill, attitude and behaviour development	CV	30 hrs
5.	Microprocessor programming for Motor applications	ME	30 hrs
6.	Intel India stem skill programme for women	ECE	30 hrs
7.	Foundations of Private equity & venture capital	MBA	30 hrs
8.	Front Accounting- Business Accounting system	MBA	30 hrs
9.	Boot Camp on Python Programming	MCA	30 hrs
10.	Mechanical Modelling using solid works	MT	30 hrs

The committee members reviewed the above-mentioned courses and approved for the same.

- 9. Feedback analysis and Action taken plan: The feedback committee members are advised to take the feedback on 'Curriculum' as per the template framed for 1-5 scaling during the academic year 2022-23 (ODD) from the following stakeholders after the 2nd IA.
  - Students a)
  - Faculty b)
  - Course End Survey c)
  - Program Exit Survey (D)
  - Alumni e)
  - Employers t)

HODs and Feedback committee members are advised to analyze the outcome based on the student's feedback on faculty and should submit the action plan and the same will be discussed in the next meeting. Like faculty who secured greater than 90% are to be appreciated and those who scored less than or equal to 75% need to take immediate necessary action. Such faculty need to undergo and enhance training/FDP/Workshop/Seminars etc. to upgrade their skills.

- 10. Implementation of OBE Matrix: The members took the decision regarding the COs, POs and PSOs of the programs and for implementing appropriate pedagogic strategies. Also informed that the Course outcomes should be designed as per the affiliating university prescribed syllabus and by employing Bloom's Taxonomy verbs and levels. It was also informed that all the Courses should have around five course outcomes and these are correlated to the Program Outcomes (POs). The members also discussed the process of mapping of COs prescribed by VTU and POs prescribed by the NBA related for the course.
  - HODs were advised to instruct the faculty that the mapping should be based on the scaling parameter which is as defined by NBA and are as follows: -

"1" – Slight (Low) correlation, "2" – Moderate (Medium) Correlation, "3" – Substantial (High) correlation and "-" indicates there is no correlation. Similarly, COs with PSOs should be mapped to achieve the attainments.

11. Students Centric Methods: The curriculum delivery committee members took the decision to incorporate the student's centric methods to improve the student's learning ability. HODs were advised to instruct the faculty should adhere the following methods in the teaching process. Guest Lecture / Expert Talk / Technical Talk/Seminar/Webinar, Hands-on session, Interactive Session, Soft skill training/ Technical Training, Industrial visit/ field visit, Internship, Project, Mini Project & innovative practices. As per the VTU circular students needs to be motivated to take up B.E Honors course with

# 8.5 CGPA

- 12. Action Plan for Slow learners and Advanced Learners: The curriculum delivery committee members instructed HODs to direct the subject faculty that they should conduct remedial classes and mentoring for the slow learners. And, also instruct the advanced learners to participate for the Conferences, Add-on courses, MOOC courses to enrich their subject knowledge in turn to get the university rank.
- 13. DAC: Principal instructed all department Dept Advisory Committee, to conduct the meeting with stakeholders, and identifies the curriculum gap, reviews the stakeholder's remarks, and identifies the thrust areas to bridge the gap.

# 14. Resolutions

- 1. Principal instructed to follow the 2022, 2021, 2020 and 2018 scheme CIE rubrics.
- 2. The approved syllabus is followed.
- Principal advised all faculty should have their course file ready and checked by respective HODs before the commencement of the classes.
- 4. Action plan should be submitted one week after this meeting.
- It is decided that all should encourage the students towards more pedagogy initiatives to get better insights in the academics.
- Principal advised to conduct more add on course/industrial visit/workshops to fill the gap and motivate the students regarding this.

PRINCIPAL The Oxford College of Engineering Bommanahalli, Hosur Road Bengaluru 560 068

PRINCIPAL

Copy to: The Chairman, The Oxford Educational Institutions All HODs. IQAC





CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office :

1st Phase, J.P. Nagar, Bengaluru - 560 078. (2): 080 - 61754501 - 502 Fax: 080 2654 8658 THE OXFORD COLLEGE OF ENGINEERING [Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi &

Approved by A.I.C.T.E., New Delhi, Accredited by NAAC & NBA New Delhi and Recognized by UGC under section 2(f)] Bommanahalli, Hosur Road, Bengaluru - 560 068. (2): 080 61754601 / 602 / 604 E-mail: engprincipal@theoxford.edu Web: www.theoxford.edu

Ref No: TOCE/AACAD/57/2023-24/6302

Date: 06/11/2023

# Declaration

The Oxford College of Engineering is affiliated to Visvesvaraya Technological University,

the college has to follow the VTU curriculum mandatorily. However to ensure effective implementation of academic calendar The Oxford College of Engineering has constituted Curriculum Delivery Committee (CDC) which will conduct the meeting with key stake holders for effective planning and implementation of curriculum delivery in the campus, the Minutes of meeting of same is communicated to all the Head of the Departments for effective implementation.

> PRINCIPAL PRINCIPAL The Oxford College of Engineering Bommanahalli, Hosur Road Bengaluru-660 068





#### CHILDREN'S LOUCATED SOCIETY (BERG.)

Advenisorative Diffeet: 1<sup>14</sup> Phase IP Magaz, Bengalario - 560 078 (3) 380 AUTSING - 502 Fax: 580 3054 4658

#### THE OXFORD COLLEGE OF ENGINEERING

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Date: 30-01-3023

#### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

#### Circular

#### SUB: Department Motting of Correction Delivery Connector

The Department Meeting of Controllon Delivery and Planning has been scheduled for 31-61-2023 at the HOD Cable, 38.00AM. All faculty members are hereby informed to attend the allow manting reliberat fail.

#### AGENDALL

- 3. Department Acadamsic Calesdar
- 2. Department Time Table
- 3. Course File / Pedagogical Mathada
- 4. Value Added Courses Content heyond as llabor
- 5. Action Plan for Slow Learnets and Advanced Learness
- 8. Feedback analysis and Artists taken plan

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#### CREARING KONCATION DODRTY (RESD.) Administrative Office

L<sup>47</sup> Phase (P Hagar, Rangaluna - 560 078 (h100-61754101 - 502 Fax, 085-2054 8658

### THE OXFORD COLLEGE OF ENGINEERING

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Approach in A.J. 52. New Tally Interplate, Road Acad. Surgarum - 1000018.

of the sufficient ANL Tax RD - STREET 5 and magnification provide that exception of

DEPARTMENT OF ELECTRICAL & ELECTRONICSENGINEERING

#### Department Proceedings of Corriculum Delivery committee Meeting

Date: 31-01-2023

Time: 10:00AM

Menders Presstit:

T	Dr.Bharath V.S
1	Dr. DeviVighneshwari B
1	Prof. Jayakonsur N
	Prof Nisha C Rani
1.0	Prof. Raichal Ruby
.0	Prof. Suratha T L
7	Prof. Ration S.R.

#### AGENDAL-

- I. Department Academic Calendar
- 2. Meeter Time Table
- 3. Course File / Pedagogical Methods
- 4. Value Added Courses Content beyond syllabor
- 5. Action Plan for Slow Learners and Advanced Learners.
- 6. Feedback matysis and Action taken plan

The following agenda was discinned -

8. Academic Calendurt

The HOOs instructed the department coordinator to prepare the draft of the department calendar for the seventer activities and advised to solvest intradiately all the datalit incorporating all the important academic, department activities & events.

2. Manter Tiese Table:

140D advised the Tatur Table Coordinator to allocate the subject for the EVEN Sensetian 2022-21

190D asked the Department Time Table Coordinane to submit the final draft. Messars were identified for 10-15 students such and it was assigned to all the department facalty. And the Messaring hour are included in all the department Time-table.

#### 3. Course File / Padagagical Methods:

HODs allotted the subjects to the family and asked there to prepare course file for the carriest streamler subject as per the VTU guidelines before the communicement of the sensence.

The course file / material should contain a copy of university syllabat, students for, attendance register, teacher diary along with boston plans with pedagogical initiatives, noise and reference books, previous 1A question papers and university question papers along with scheme of evaluation and question basis, assignments etc. Many pedagogical methods are adapted by the faculty like shalk and talk, smart board unages, PFTs, Videos, short term courses, seminary, Presentations, etc. are included in the course file.

HOD instructed each facially that they need to follow VTU guidelines for conducting the Internal Americancets Tests (the CIE question paper, Scheme of Evaluation, Renall Analysis,

#### 4. Value Added Grames, Content beyond syllabor.

The value-added course to be completed for the academic year 2022-23 should contain 30km and can plan after classes. It should be offline event and asked the concerned coordinators to identify satuable restorete person for the same.

### 5. Feedback analysis and Action taken plan.

The feedback was taken on 'Carriculans' as per die template feataod for the analymic year 2022-23.

- Studems
- M Fainity
- (). Control End Survey / Employer
- (f) Course End Survey / Parents
- O: Alumat

Based on the corriculum feedback the add on courses, gatot lennam and other activities one be framed so that the gap can be filled.

#### 6. Action Plan for Slow learners and Advanced Learners.

As per the content delivery committee members instructions HOD directed the subject faculty that they should conduct remedial classes and memoring for the slow learners. And, sho instruct the advanced learners to participate for the Conferences, Add-on courses, MOOC courses to enrich their subject knowledge in turn to get the subversity rack.





TOCE/EST/27/2022-23

### **Re-constitution of Curriculum Delivery Committee**

Date: 02-09-2022

Time: 11:00 AM

TOCE being affiliated institution has very firsted rate in capitoatan designing. However, to ensure senseless learning experiences to the anderes. TOCE has constituted corritation delivery committee. The constitute interacts with all the key stake holders to ensure effective curricalare learning process. The Cartiestom Delivery Committee members for the academic year 2022-2023 as follows:

Mombers Denils

01	Dr N Kaurun, Principel, Churghenson,		
62	Dr. R Ch A Nalife, Member Secretary (IQAC	5	
63	Dr. Vijoya Romeri - Dran Academica	84	Dr.Presta Chayan - Drais Research
65	Dr.Malikaryan - Dean Exons	406	Dr. Margunath B K - HOO - BT
$\overline{m}$	Dr. Maliminath T S - HOD -CIVIL	56	Dr. M S Sheihicher - HOO - MCA
49.	Dr. Maeju Devi, HOD - ECII	39	Dr. P Gargavata + HOO - SESI
Æ	Mr. Dhawhan H. Szadnut Meethur, M.Tech-Structural Engineering	12	Mr. Producth Europe, Student Member B.E (Mechanical Engineering)
11	Magas Gowda, Student Member MCA	(14)	Ms. Navya, Statist Member B E (Computer Science and Engineering)
15	Mr. Megtaraj G Stadarit Member - MBA	14	Durary Johnnie, P Staters Moreber II.I. (Electrical and Electronics Engineering)
W.	Mr. Anadha Chowdary Pareta	-18	Nagaraj NJ, Parent
19	Mr. Nanda Gopal - Inductry Expert - MT	-28	Dr. Stinives Teleformale - Academic Expen-ECE
36 T	Mr. Gautay Mitchen - Alusteri		

Cupy to: The Chairman, The Oxford Educational Institutions All HOOs. IQAC PRINCIPAL PSEISCOPAL The Oxford College of Eligeneering Barringpahalli, riscor Hold Barringpahalli, riscor Hold Barringpahalli, riscor Hold





ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ



Pವೆ ದೆ ಯು ಅಧಿನಿಯಮ ೧೯೫೪ ರ ಆದಿ 🖬 ಬಿ ಕನಾಳ ನರ್ಕಾರದಿಂದ ಗ್ರಾಪಿತವಾದ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯ

#### VISVESVARAYA TECHNOLOGICAL UNIVERSITY

(State University of Government of Karnataka Established as per the VTU Art, 1994) "JuanaSangama" Belagavi-590018, Karnataka, India

REGISTRAR	Fax : (0831) 2498100 Fax : (0831) 2405467
REF: VTU/BGM/ACA/2022-23/ 3000	DATE: = 3 SEP 204

#### NOTIFICATION

Subject: - Academic Calendar of ODD semesters B.E./B.Tech./B.Plan /B.Arch. programs of University regarding... Reference: Henible Vice Chappellaria concernal date & Git 60 10010

Reference: Hon'ble Vice-Chancellor's approval dated: 03 09.2022

The academic calendar concerned to ODD semesters of B.E./B.Tech./B.Plan./B.Arch. programs of University for academic year 2022-23 are bereby notified as mentioned in the attached sheet;

The Principals of Affiliated, Constituent and Autonomous Engineering Colleges are hereby informed to bring the academic calendar to the notice of all concerned. Encl: As mentioned

Sd/+

REGISTRAR

To,

100

- 1. The Principals of all affiliated/ constituent /Autonomous Engineering Colleges under the ambit of VTU Belagavi.
- The chairperson, Department of Mechanical Engineering /Civil Engineering /Computer Science and Engineering and Business Studies of the University.

#### Copy to.

- 1. To the Hon'ble Vice-Chancellor through the secretary to VC, VTU Delagavi for information
- 2. The Registrar (Evaluation), VTU Belagavi for information.
- The Regional Directors (I/c) of all the regional offices of VTU for carculation.
- The Director I/c\_ITTSMU, VTU Belagavitor information and to make arrangements to upload revised Academic Calendar on the VTD web portal.
- 5. The Director of Physical Education, VTU Belagavi for information
- PS to Registrar VTU Belagavi
- 7. All the concerned Special Officer/s and Caseworker/s of the academic section. VTL, Belline

01 04 : Registrar

#### Academic Calendar for ODD Semester of UG programs for the year 2022-23

	i sumestor B.E./B.Tech.	i semester 8.Arch /8.Pten	i semasilar 8.5c.	Ni semester B.E./ B.Tech.	III Samester B.Arch.	W semester Bi Pien	IX Sometter B.Sc.	V Semester B.E./B.Tech.	V Sapeester B.Arch./ B Plan	VII semerter B.L/D.Tesh	VII semertér B.Mark	VI) semaster B.Arch	ik şəməstər B.Arch
Commencements of GDD Seminator	# 10.10.7022	# 10-10.2022	10.10.2022 (Tentative)	11.10.2022	31.10.2022	31.10.2022	10.10.2022	10.10.2022	12.09.2022	21.08.2022	21.08.2022	19.09.2022	01.09.2022
Internship	   			1].10,2022 Yo						21.08.2022 To	21.08.2022 To		   :
i	İ		l	30 10.2022				L		17.09.2022	24.09.2022		
Commencement of Classes				31.10.2022	31.10.2022	31.10.2022	10.10-2022	10.10.2022	12.09.2022	19.09.2022	26.09.2022	19.09.2022	D1.09.2022
Lass Working day of ODD Semester	: : :			1102.2023	11.02.2023	11.02.2023	28.01.2023	27.01.2023	\$1.12.2022	31.12.2022	07.01.2023	31.12.2022	20.12.2022
	-			13.02.2023	13.02.2023	13.02.2023	01.02.2023	30.01.2023	03.01.2023	03,01,2023	09.01.2023	03.01.2023	21.12.2022
Fracisco				To	Τø	Τ¢	Ta	Τσ	Τά	To	То	То	To
0.0010000000	<u>.</u>			21.02.2023	21.02.2023	21.02.2023	09.02.2023	Q9.02.2023	11.01.2023	19.01.2023	14.01.2023	13.01.2023	31.12.2022
				22.02.2023	22.02.2023	12.02.2023	13.02.2023	13.02.2023	16.01.2073	16.01.2023	16.01.2023	16.01.2023	
Theory				Tu	Та	Та	Ta	Τσ	Τu	То	То	To	—
E-Hardling Court			1	22.03.2023	22.03.2023	22.03.2023	03.05.2025	18.03.2023	15.02.2023	15.02.2023	15.02.2023	15.02.2023	_
Internship			*	76 03.3033 To 16.04.2023		-			5		_		-
Internship Vina Voce/ Project Vina				—	_	_		187	_				-
Commencement of EVEN Semester				17.04 2023	17.04 2023	17,04.2023	20.03.2023	20.43.2023	20.03.2073	20,02.2023	20.02.2023	20.02.2023	06.03.2005

Please Nota:

- \* The scade mic sessions for ODD scinesiers should commence from the dates mentioned above. # Commencement of Induction Program As per AICTE Anademic Calendar 2022-23
- The commencement date of VI) semester B E / H.Tech/, is porposed from 12.09.2022 to 19.09.2022 to cover 04 weeks of internship duration. The students of B.E./B.Tech/, compulsorily have to complete the laternship in this duration only.
- The commencement date of VII semission R Plan. is postponed from 12.09 2022 to 26.09.2022 to cover 06 weeks of Internship duration.
- Students yolning to VII semister B 7./B.Tech/8.Plan should complete the laterniship before the commencement of the classes.
- The Instruct needs to function for six days a week with additional hours (Saturday is a full working day). #if required, the college can also plan to have extra classes on Sundays to complete adadenic acdvittes within the duration mentioned.
- The faculty/staff shall be available to undertake any work assigned by the university.
- Notification regarding the Calendar of Events relating to the conduct of University Examinations will be issued by the Registrar (Evaluation) from time to time.
- Anademic Calendar may be modified based on guidelines/directions issued on the future by MHRD/UGC/AICTE/State Government.
- Academic Calendar is also applicable for Autonomous Colleges, if any changes are to be effected by Autonomous Colleges in the academic terms and examination schedule, they could do so with the approval. of the University.
- . The college has to conduct offline classes to cover 80% of the syllabus of the courses, bowever, 20% of the syllabus can be covered in virtual model (Unline) mode. Attendance of the students for offline and Ray OS Og 1203 and the masses as mandatory and records should be maintained and submitted to the university whenever informed-
- If any clarification/convection, please entail to solve uso@gmosi.com
- \* Internship for Lateral Entry Students







## ವಿಶ್ವೇಶ್ವರಯ್ಯತಾಂತ್ರಿಕವಿಶ್ವವಿದ್ಯಾಲಯ

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## VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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Prof. B. E. Bangaswamy ren

RECEIPTION.

KAP 970/1604/07/2023/ 6-60

Plane: (9031) 24/0104 Fee: (9031) 2405467

DATTE BMAY ZUES

#### NOTIFICATION

Bolkjerts Tentotive Adademic Gebruike of It Semicitor B.C./ICTentultArchi and B./Nau and IC remember B.E./ICTentu programs of Homenity regardling...

Reference: Birchie The Chanceller's approval-band, 00.05(2003)

Yestotive Academic Calendar of D Semister B.E./R.Tech, B.Arch and B.Plan and W semister B.E./B.Tech, programs of the University for the academic year 2022-23 are hereby outfied in mentioned below;

(Testative) Academic and	Colendar for semistra W associate B.E./B.T.	ech., Programs (May 202	isch/0.Arch./0.Plas IJ
	II sementer B.E./B.Tech	II isomester BArch, B.Plan	IV semester B.L./ B.Tech
Commencement of even serviceder	17,85,2023	17.05.2023	17.05.2023
Internchip	-		17.05.2023 To 93.06.2023
Consistence one of the Classes	17,85,2023	17.05.2023	05.06.2023
Last Working day of the Semester	31.00.2033	11.08.2023	16-89-2023
Practical Examination/Viva Economistone	01.09.1013 Te 10.09.2023	91.09.2023 Tu 90.09.2023	10.09.2023 Tu 30.09.2013
Theory Examinations	11.09.2023 Te 07.10.2023	11.0%2023 To 27.0%2023	03.10.2023 To 20.10.2023
Gammencement of next Somester	09.18.2023	09.10.2023	25.19.2013

Please Note:

 The academic services for EVDA sense is reduced concretence on the date mentioned adverse.

- If accessing, the college may hold error classes on faturitage and herefore to complete scaderoic activities within the specified time/cares
- · The faculty/staff shall be available to undertake any work assigned by the university-
- Untransity Examination Calendars will be published by the Registrar (Evaluation) from time. Sections.
- The Academic Calcular may be modified as MURD/OGC/MCTR/state governments inser gold-lines/derections in the future.
- Accolumn submittees are also applicable to autonomous colleges. If any changes are to be scale by Autonomous colleges in the accelerate terms and coordination whether they could do us with the approval of the autoentity.
- · Unry clarification/correction/ouggestions, picaso estal \_abhathhavi@vtu.ac.in
- \*\* Indumos Program shall be conducted for 10 days for 2nd sometime students. Activities existed to induction program's shall be conducted on every Saturday (if respond on Sunday) totaling to 10 days, Upon completion of the induction program, colleges must enail a brief report to Abhalldaniil studecket
- The principals of engineering colleges under the autist of the University, are hereby informed to bring the academic calendar to the notice of all concerned.
- The Chargernam of the PG department of the University where UG programs are offered are hereby informed to bring the academic colonitar to the notice of the all concerned.
- The Directors of Echools of Architecture and Plasming under the andrit of the university are however informal to bring the academic calendar to the sortice of all concerned.

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- The principation all engeneering colleges, Directory Sciencia of Architecture and Planning under the notion of VTU Relagons. The Charger was of the PG Dispartment of the secondary.
- Lagerte.
  - 1. To the Humble Ware Oniocellise through the neurotary to VC VTU hillsgowi for telesteristics.
  - 2 The Regencer (Resharctor), VTU belogest for tells matters
  - 3 The Regional Directory (Up) of all the regional offices of VDI for coroutation.

 The Director L/C. ITI SMU, STO Delegate for information and to ranks arrangements in agricult Academic Collegator in the VTG web parts.

- 5. The Director of Physical Schoolson, TTU Belagan for televisition
- 4. The Direction of Control Placement Offices 97D Selagari for table matters
- 2. All the concerned lipschil Officer/s. and Concerner/s of the academic section. WTU, Indepen-

t E REGISTRAL



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## ದಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ

"The state", divise desire, server, ever

### Visvesvaraya Technological University

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Date

#### Dr. A. S. Deshpandens intra-min

Phone: (0802) 2498100 Fax: (08031) 2925467

Hat. VTU/BUM/R08/A9/2021-22 /4-5-7

#### NOTIFICATION.

Bubpett: Weathened Colonatia of 2<sup>rd</sup> sense turn of M Acres M Tack / MOA/ MCA/ HLPLas/ 9104(2009) programm of Daviaciany trigonolog.

Rebender

- Australia Colevier (PDD 31-44 AUCT dated 26.02.0020
- Does Transmission Announcement (April 11)
- · Maxie Ver Consoller's approval dated 14.86-2012

The scadyout calvedar concerned to 27 severation of the Million / 
	H seem M.Phan	H Serm MEA(EV)	H servedue MBA	Ranmoster Miljech,	Morrestar M.Ach	Hammonian MCA
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in many	57,48,3942 74 38,71,2009	-	18.38.3000 1a 16.51.2010	13.30.2022 10 30.13.0023	11.10.2013 To 19.11.2021	-
of mot QGD Semester	34.11.303	38.11,2021	38.33.2900	1633.2925	18.013932	38.11.002

Please Note:

- The modernic services for the 2rt senergy plantif concrusion lives the dates mentioned stress.
- The Internate secold to Exection for sits days a secold with additional hours (Exturbly in a fail, working day). If explored college can also plan to have extra classes on Souday to complete the requisite beam of leading and learning of courses as per the scheme.
- If thermoster BEA standards may willing the discrimination and shall be between magnitudian and edd associate commencement date for sumpletion of testamy Complians program/activity to imprive their shift.
- · The taxetty/teall shall be available to coderiate any work assigned by the associate

- Notification reperfing the Educate of Events orlating in the standard of University Examinations will be bound by the Reputric (Reduction) from time to time.
- Attributes: Coloradar may be modified based on gathelines/directions instead to the fature by https://directions.instead to the fature by
- Adiadense: Calendar to also opplicable for Astronomous Colleges. In case any changes, are so be offerred by Astronomous fieldspra in the scadense series and exacemation schedule, they readd do so with the appetroil of the University.
- The college has to conduct offline classes to cover 60% of the opflabor of the coverses, however, 20% of the splatter can be covered in extrail (United) words. Attendance of the conducty for offline and indice classes is markalory and torandy should be expendented and university whenever in markalory and torandy should be expendented and university whenever information.

The Principals of Altifiated, Constituted and Automotivity Engineering Colleges are hearing unforward to bring the academic coloreday to the nature of all constitueed.

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- The Principids of all attituted/ constitutes? (Autometrizers Engreening Unleges under the antifat of VTC Delagert.
- The champerson, Department of Meshanical Engineering /Gell Engineering /Computer Advance and Engineering and Baytress Intifies of the Detroroty.

#### Capy In.

- 1. To the likelihe 'to-diani effor through the secretizes to VC, VIU Belageri for reformation
- 2 The Segneture (Evoluation), V711 Belogiet for referenting.
- 8. The Regional Directory (0/c) of all the negligibal allows of UTU for consulations.
- The Doverse L/s. 37(15M0, VT0) itelagies for information and to make arrangements rouplined Academic Calendar on the VT0 soft period.
- 8. The Director of Physical Education, VTU Belogan for Information
- 6. PS to Registrar VTO Relagavi
- 3. All the concerned Spychal Officer /scored Lawrencemet/scif the academic metrors, WTR, Bellagave



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Phone: (0831) 2450100

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### VISVESVARAYA TECHNOLOGICAL UNIVERSITY

[him: Convenity of Greenement of Kernataka Emiliidant as per the VTU Act, 1994 "Press, Surgery," Biology of 2010115, Rayreetikes, Dalla-

Frid. Dr. H. E. Manganwamy, reamediutham(1/c)

HEF: VTUBENIACA 2823-25' LF 2 0 J.

#### NUTIFICATION

Subject: - Academic Gdendar of 314 Sammilers of St.Tech./MBA/MCA/M.Plan/M.Arch., programs of University regarding... Reference: Hon'his Vice-Chancellor's approval dated: 07.11.0022

The seaterise coloridar concernint to 3<sup>rd</sup> semesters of M.Tech./MIA/MCA/M.Arch/M.Plan. programs of University for scaderise year 2023-22 are hereby southed as westioned in the attachest sheet;

The Principals of Additated, Constituent and Astanonuras Engineering Colleges on bereky informed to bring the academic calendar to the notice of all concreted. Each As mentioned

> 54/-HUDSTRAB

TO.

- The Principals of all affiliated/ resultance/ / Autometers Engineering Colleges under the instituted VIDI Bellages).
- The charperion, Reparament of Mechanical Engineering /Gell Engineering /Gell Engineering /Gellandering

#### Copy to.

- L. . To the Horizan Vice Characiller forcingh the secondry to PE, WW Delagoed for reflections
- E The Hustoirer (Undeaters), VTU Religest for rate material
- 1. The Heptonic Director's ((Ar) of all the regional affines of \$131 for constitution.
- The Director Ma. IDUMER, WTO Relegant the information and in motio of adjournments in advanta-Academic Consider as the VDI sett partial.
- L Dis Mancher of Physical Education, VIU Rebusies for information
- 6. Philo Regulater VIV Reingert
- 2 All the presented Special Officer/s and Catenoretics (viet like academic pettern, VIN, Relieper,

polul y Registrar

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## Academic Colendar for OOD Semisters of PG Programmes for Year 2022-23(Textative)

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- \* The lighted needs to further be destinated with additional front Networks with a full working days. With going the relingtion doe must be have the basis of a sector by further
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Prof. Dr. R. E. R. Registrar	ngaswamy, see.		Phone Fax	: (0931 : (0831	) 2498: () 2405	100 467
REF: VTU/BGM/AC	a/2022-23/ SO4	NOTIFICATION	DATE:	E:7	APR	2023
Subject;	Tentative Academic G MBA/M.Arch/M.Plan/ sem of MBA(IEV) proj	alendar of IV semesters M.Tech./B.Plan/B.Arch prog grams of University regardi	grams and III ng			
Reference	<ul> <li>Dean Faculty of Engine 06.04.2023</li> </ul>	eering VTU Belagavi approv	al dated			

1

Hon'ble Vice-Chancellor's approval dated: 07.04.2023

The tentative arademic calendar concerned to

IV semesters of

BArch/B.Plan/ MCA/MBA/M.Tech/M.Arch./M.Plan and III semester of MBA(IEV) programs of

University for academic year 2022-23 are hereby notified as mentioned in the attached file Please Note:

- The atademic sessions for the entire program mentioned should commence on the date mentioned.
- The Institute needs to function for six days a week with Saturday being half working day #if required, the college can also plan to have extra classes on Saturday afternoons and Sundays full day to complete academic activities within the duration mentioned.
- The faculty/staff shall be available to undertake any work assigned by the university
- Notification regarding the Calendar of Events relating to the clinduct of University Examinations will be issued by the Registrar Evaluation) from time to time.
- Academic Catendar may be modified based on guidelines dure tions issued in the future by NHRD/UGC/AIUTE/State Government.
- Academic Calandar is also applicable for Automotions Colleges, if any changes are to be effected by Autonomous Colleges in the academic terms and examination schedule, they could do so with the approval of the University.
- If any clarification/correction, glease enabled to shhall bhavi@vtu.ac.in

The Principals of all Engineering Colleges and Directors of Schools of Architecture, under the ambit of University are hereby informed to bring the academic calendar to the notice of all concerned.

Encl: As mentioned above

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#### REGISTRAR

#### 70.

 The Principals all Engineering Colleges and Directors, Schools of Architecture under the ambit of VTU Belagavi.

#### Copy to.

- 1. To the Hon'ble Vice-Chancellor through the secretary to VC, VTU Belagavi for information
- PS to the Registrar (Evaluation), VTU Belagavi for information.
- The Director I/c. (T) SMG, VTD Belagavi for information and to make arrangements to upload Academic Calendarion the VTD web permit.
- 4. Special Officer OPDS Examination section VTU Belageol
- 5. Caseworker P. Manjunath Examination seldor VTU Belagavi
- 6. The Regional Directors (I/c) of all the regional offeres of VTU (or circulation
- 7. The Director of Physical Education, VTU Belagavi for information
- All the concerned Special Officer/s and Caseworker/s of the academic section, VTRI, Relagavi.

07 04 23 LE REGISTRAR

	IV Semester B.Arch.	IV semester B. Plan	MI semester MBA(IEV)	IV semester MCA	IV semester M.Tech.	IV Semester MBA	IV Semester M. Arch.	IV Semester M.Plan.
Commencement of Semester	17.04.2023	17.04.2023	17.04.2023	17.04.2023	17.04.2023	17.04.2023	17.04.2023	17.04.2023
Internship /Project Survey	3443 1	-	17.04.2023 To 27.05.2023	-	-	17.04.2023 To 27.05.2023		-
Commencement of Classes	17.04.2023	17.04.2023	29.05.2023	17.04.2023	17.04.2023	29.05.2023	17.04.2023	17.04.2023
Last Working day of Semester	31.07.2023	31.07.2023	09.09.2023	31.07.2023	31.07.2023	09.09.2023	31.07.2023	31.07.2023
Practical Examination	01.08.2023 To 05.08.2023	01.08.2023 To 05.08.2023	11.09.2023 To 15.09.2023	01.08.2023 To 05.08.2023	<u> </u>		_	-
Theory Examinations	07.08.2023 To 30.08.2023	07.08.2023 To 30.08.2023	19.09.2023 To 06.10.2023	07.08.2023 To 30.08.2023	02.08.2023 To 22.08.2023 (Old scheme)	11.09.2023 To 07.10.2023		
Report Submission		-	0 <del>000</del> 53	15.07.2023 To 31.07.2023	01.08.2023 To 15.08.2023	28.08.2023 To 10.09.2023	01.08.2023 To 10.08.2023	01.08.2023 To 10.08.2023
Commencement of next Semester	04.09.2023	04.09.2023	09.10.2023	1997. 1997 Maria Maria	1111	-		

## (Tentative) Academic Calendar of UG-PG programs for the academic year 2022-23





#### VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Sime University of Constrainty of Karminka Englished at per dis VICI Act, 1988 "Interconnector" Independentials, Redin.

Prof. Dr. B. E. Rangaywamy, vs.m. HEERSTRAN

Phone: (0831) 2498100 Fas : (0831) 2405467

HEE YOUNGMARACOUST - FIP

DATE - 2 MAR 2023

#### NUTIFICATION

Subject: Termitist Academic Calendar of it and 37 sam B.Sc (Hurt), VL arm B.E./B.Toch, II.Plan, P.Arch: programs of University regarding... Reference: Hurtide Tion-Chancellar's approval dated. 01.01.2021

The tentative seademic calendar concerned to 0 and 19 sem 0.5c (1860). VI sem B.E./R.Tsch., B.Plan, B.Arch., programs of University for academic year 2022-22 are hereby notified as mentioned in Acasesary-1:

The Principals/ Devetors of all Engineering Colleges/Schools of Architecture, order the archit of University are hereby informed to bring the academic calendar re the notice of all souccerned.

5d/+

REGISTRAL

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The Prescipals all Engineering Golleges under the anish of University.

2. The Director of all school of Architectory under the audot of University

3 The chairpensis/Program countinator of MIADEV) program VTU Bulagov

Copy to:

1. To the therable Vise Characellier through the overvicery to WL VTO follogwi for information

7. The Registers (Destenance), VTU Hotages for telesimation.

3. The special Officer QPUS section V72 Helagave

4. The Reported Barectors (UC) of all the expressiveRous of HTU for structures.

 The Densities Up. 101 XMD, VTU Belagave for inducedants and to make according encode to aplicat Autobasis Calendar on the VTU with period.

6. The Director of Physical Education, VIU Subgryt for tale matters

7. The Director, Goldraf Planoisnes field, VTII Helagovi

E. All the concerned (period Ufficer/s and Caterourbar/s of the acidemic scotton, VTD, Bolagosi

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	IL sents B.Sc.(Work)	IV sem IS-Sc (three)	YT or an R.E./R.Tev'h	W arm EPian	#Visen: EArth
Commencement of wenestor Classes	04.03.2023	20.03.2023	20.03.2023	20.05.2625	201.03.2023
Last Working day of On Semester	10.05.2023	10.07.2023 -	10.07.3023	10.07.2025	10.07.2023
Practical Examination/Vitu Examination	03.07.2023 To 07.07.2023	11.07.2025 To 15.07.2025	11.07.3028 To 21.07.3028	13.07.2023 To 23.07.2023	11.67.2023 To 21.07.2023
Theory Econisations	10.07.2025 Te 25.07.2025	17.07.2823 To 31.07.2023	24.07.3038 To 12.08.2021	24.07.2023 To 12.05.2023	34.07.2923 To 12.08.2925
Internship		-	04 weeks 09.09.3523	06 weeks 16.08.2023	
Commencement of next Semester	01.08.2023	01.08.2023	13.09.2022	19.09.2023	16.08.2023

#### Annexure-I

4 Acumunic columns arounds ocefline wate VTU/MAM/ALA/2013 (1)/4888, dowed 18 08 2022

Please Note:

- The stademar sensitives should commonly on the date mentioned above.
- If required, the sullege can also plan to have exten classes on Saturday(17 and 37), and Sundays full day to complete academic activities within the duration monitored.
- The faculty/staff shall be enallable to undertake any work assigned by the university.
- Notification regarding the Odendar of Events relating to the conduct of University Examinations will be inseed by the Registrar (Evaluation) from time to time.
- Academic Caleridar may be modified based on guidelines;/directions issued in the funary by MNRD/UGC/AICTE/State Government.
- Academic Celendar is also applicable for Automotors Colleges. If any charges are to be effected by Autonomous Gilleges in the stalentic terms and manipation schedule, they could do no with the approval of the University.

If any marification/convention, please email to - shhallshavisPyta.ac.in






# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

man Conserver of Government of Lorentzian Couldwired in per the VIII Act, 1990 "Junnehingungs" Belageri Jüllilli, Karantaka, Badia

# Prof. Dr. H. E. Rangauwaney, rs.a. REGISTRAR

Phone: (0831) 2458108 Fait 1 1003112405467

HEF. VTU/BOM/ACA/3002-23/ 65565

DATE: ALL FEB. 2073

# NOTIFICATION

Subprets. Tentative Academic Calendar of VIII summiture of B.R./ B.Tech. RArch, B. Plan programs of forwardty regarding ... Reference: -Here'be Vice Chanceller's approval dated: 01012020

The tostistive academic calendar concerned to VIII semesters of B.E./B.Tech.,

B. Arth., and B. Plan programs of liniversity for academic year 2022-23 are hereby autofied as mentioned helow:

(Tentative) Academic C	afendar for arresters	out all VIII Semester DG	Programs (Feb 2023)
	B.L/B.Tech	B.Jeth	8.Plan
Comment ement of 3 <sup>th</sup> semester Classes	13.02.2023	13.02.2023	13.02.2023
Last Working day of 8% Sestenter	13.05.2023	13.05.2023	11-05-2023
Practical Exemination/Viva Exemination	#5.04.2023 To 13.05.2023	16.05.2023 To 26.05.2023	
Theory Examinations	16.05.3023 Te 01.05.2023	29,95,2023 Te 10,06,2023	16.05.2023 To 91.06.7023
Commencement of next Seminator	-		

Please Nates

- The academic sensions for VIII somester should conservery on the date mentioned . allairen.
- · The factions media to house on the six days a week with fisherday being half working day wif required, the college can also plan to have extra classes see Saturning a formation and Sondays full day to complete academic activities within the charation merchand. This will fairlifule the final year students for appointing competitive examination for their careur and also helps in positing admission Anorthe Lands

- The faculty/staff shall be available to undertake any work assigned by the university.
- Nonfication regarding the Colember of Reents relating to the soudart of Italyeesity forminations will be toward by the Registrar (Itvaluation) from time to time.
- Academic Griendar may be modified based on gathelines/directions inseed in the Jature by MERD/UGC/AICTE/fines Government.
- Anademic Calendar to also applicable for Autonomous Calleges. If any changes are its lie effected by Automotorus Calleges to the academic terms and manimalian schedule, they could do so with the approval of the University.
- If any darification/correction, please enail to + although yahoo com

The Principals/ Directors of Schends of Architecture, under the amini of Ourversity are hereby informed to bring the academic calendar to the notice of all concerned.

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## REGISTRAR

### The:

 The Principalit / Director's Schools of Architecture under the acute of VIM linkagave. Gege ta.

- To the Non-Sile Vice Chancellier through the ascretary to VC, VYU Bolagest for information
- 2. The Registrar (Evaluation), VTB Behapot for information.
- 3. The Regional Directors (U/c) of all the regional offices of VTU for complation-
- The Director Un. (1) SMO, VTU heliopart for information and to mode arrangements tesphird Academic Colordar on the VTU web portal.
- 5. The Director of Physical Education, VTU Belagavi for information
- A AR the concerned Special Officer/c and Caseworker/s of the scalarate section, VTD, Belageri.

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# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Chang University of Concentration Constants Landshided as per the VIU Act, 1980 "BarronSurgarma" Beliggers (200016, Reconstants, Iraffa)

Prof. Dr. B. E. Bangauwamy, ma-

Phone: (8831) 2498100 Fax (0831) 2495467

MEP. VYU/HGM/ACA/3022-21/ 6537

2 FEB 2023

## NUTIFICATION

Subject: Testative Asselence Calandae of 11 surrenter of all Pase Graduation programs of University regarding . Reference: Dean Faculty of Engineering, VTO Belagavi approval dated 01.02.3023 Hearble View Chinestlar's approval dated: H2.02.2023

The tentative academic calendar concerned to 1st semester of all PG programs of University for academic year 2022-23 are hereby notified as mettioned below:

(Tentative) Acc	ademic Calena	tar for 1= sem	ester of all Pi	= Programs (F	eb 2023)
	MBA	M.Tech,	M.Arch	M.Plan	MCA
Commencement of 1 <sup>st</sup> semester Classes	13.02.2023	13.02.2023	13.02.2023	13.02.2023	13.62.2023
Last Working day of 14 Somester	31.05.2023	31.05.2023	31.05.2923	31.05.2023	31.05.2023
Practical Examination/Vive Examination		01.06.2023 To 06.06.2023	91.06.2023 Te 96.06.2023	01.06.2023 To 06.06.2023	01.06.2023 To 06.06.2021
Theory Examinations	07.06.2023 To 21.06.2023	07.05.2023 To 21.06.2023	07.06.2023 To 21.06.2023	07.06.2023 To 21.06.2023	07.06.2023 Tu 21.06.2023
Commencement of next Semister	36.06.2023	26.06.2023	26.06.2023	26,06,2023	26.66.2023

Please Note:

 The academic sessions for 1<sup>st</sup> presenter of all PG program should commission on the date mentioned direct.

 The Institute needs to function for six days a week with Saturday being half working day. Bif required, the millege can also plan to have entry classes on Saturday administery and herefage full day to complete anatheres: activities within the danation mentioned.

- The faculty/staff shall be available to undertake any work autgreat by the deterrally.
- Nomilcation regarding the Calendar of Barnets relating to the conduct of University Examinations will be inseed by the Registrar (Soulcation) from time to time.
- Academic Colonator may be modified based on galdelines/directions inseed in the follow by MIRE/CSC/ARCTE/State Government.
- Academic Calibratian in obset applicable free Automotions Codleges. If any charges are to be effected by Automotions Codleges in the arademic terrin, and examination schedule, they ranke to se with the approval of the University.
- Hany darification/correction pieces arout to shitwiteso@yahao.com

The Principals/ Directors of Schools of Architecture, under the anihit of University are hereby informed to bring the academic calendar to the notice of all communit.

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# REGISTRAR

Te.

 The Principale / Directors, Schools of Arikitestare ander the autor of VTU Betagoal.

### Copy to .

- To the thin ble Van-Osancefic: through the socretary to VC, VTD Bulagrei for information
- 2. PS to the Registrar (Itrahastice), VTU Belagast for information.
- 3. Spectar Officer QPD5 Bitaministion section VTU Belagavi
- 4. Caleworker P. Manjanath Examination section VTD Belagavi
- 5. The Regional Directors (t/c) of all the regional offices of VTU for circulation.
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# THE OXPORE COLLEGE OF ENGINEERING

DEPARTMENT OF BIOTECHNOLOGY

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# TOCE/07/DAC/2022-23/02

# BAC MEETING CIRCULAR

# 25/01/2023

This is to Bring to the renice that Department Advisory Committee (DAC) meaning has been scheduled for the 1<sup>th</sup> of February 2023. The masting will take place from 11,80 AM to 12,00 PM at Disoutheology Department HOC: Cabin.

## Arriada of the Married!

- 1. Review of Previous DAC meeting
- 2. Department Plan of action for Academic your 2022-33 Even somether
- 3. To discuss Pedagogini Isitiatives and Student Cartrix methods.
- 4. Review of course film/Timetable
- 5. Implementation of OBJE matrix
- 6. Action Plan for slow and first lineners
- 27 Feed back analysis and Action Plan
- 8. Finalizing the domain and industries for Interrubip and Project.
- 9. Proceeding Research Publications among Paculties and Students,
- 10. Cryanizing Value added overses and workshops
- 11. Any other with the Permission of Chair

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Chairperson

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# THE OXFORD COLLEGE OF ENGINEERING DEPARTMENT OF BIOTECHNOLOGY

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1/02/2023

MINUTES OF MEETING OF DEPARTMENT ADVESDBY COMMITTEE (DAC) DAC specing was conducted on 1/2/2023 on BODs shoulder from 11.00 Auxis 12.00 Pm in discuss the following points and the Committag was in full quarter

- 1. Department Plan for the Academic Your 2022-23 liven Sometics
  - Illaviewed and approved the proposed plan for the openoming soluble nonventor with respect to nonlerate estimate and Timozofda.
  - Distanced key analysic activities, including Conner file preparation. Pedagogical Initiatives such as using Digital based, Inclusion of AI based mode. (Filp flog classes, NPTEL, MODCs. videos in Traching learning Process, class schedules, painteents etc.)
- Explored methods to enlance tooching's student-source name acts at field visits, industrial visits, connacts programmers, Mini Projects and Jostacing active participation and engagement in the loaving process.
- 3. Discussed strategies for both three and advanced learners, similing to uffor appropriate support and challenges based on individual needle such on conduction of numerical chanses. Practice resolutes for analytical shill improvement for always learners and invaring extra study material such as Research articles, Journal and Industry V1,OG5 for correct trands in the subject domain for advanced learners.
- Analyzed feedback data from students and fiscally to property overa of improvement, commonitation, and actionable steps to enhance the overall odorational experiment.
- Reviewed the status of Ostconn-Bosel Education (ODE) matrix implementation such CO-PO-PSO attainments, amoring alignment with spreedilation standards and montimum improvement.
- 6. Pleaticing the domain and Industries for Internship and Project
  - Explored presented industry parametricips and domains for stotlers internatings and projects.

- Discussed exiterin for activiting industries to scenare alignment with conformic petit.
- Dr. Copinath along with The Chramitics members lleggested the below comparing for internable and Projecta -Azyon Thomismur Poillol, R.V.College. of Engliseering, Stericos Thomas Pot.Ltd, Seri Distech Research Laboratory, Central Silk Technological Research Institute, National Institute of Merini Health and Neuro Sciencer (NIMELANS)
- 7. Promoting Research Publications among Fauntties and Students
  - Dr.V.Sianduranas: Esuphasized the importance of research publications for built. finishty and students.
  - Discussed wrategies to encourage and support faceby in publishing duir research.
  - · Explored opportunities for gradem investment in research and publication antivities.
- 8. Organizing Value telded courses and workshops to aim of enriching the carriestum by addressing identified gaps and providing montent that good beyond fromdational knowledge.
  - · Acknowledged the significance of conducting value-added courses and workshops and the topic is been identified for value added course was. Pythou Programming using Django.
  - · Discussed potential topics for courses and weekshops burnt on identified knowledge mays and to promote Pataeting and to give assurement atoms IPO more prevalence had been given for conducting workshops and assurement programmer enlated to IPR.

Member Secretary presented department performance in the previous sementer (2022-23-Odd Semoner ) with respect to the DAC meeting conducted on 8th September 2022

1. Student performance in semester end exaministion along with result analysis

2. Department activity.

3. Faculty performance

4. Curricular gap identified and addressed in the academic year

5. Research activity

The Committee was in full quorum. After Reviewing, the committee approved the Department Academic Plan, Calendar, timetable and plan of action for anademic year 2022-23 Even Seminar.

# Jushers Attended

- 18 K - 1	Name		
No		Designation	Position in the Committee
1	Dr.N.Kannon	Principal, The Oxford Collage of	Chairperons
2	Dr. D K Morganathia	Professor & Head Department of Bioractinology, The Oxford College of	Mundon Numbery
3	Dy. V.Sonderanaa	Principal Scientist, CSIR-CIMAP, Durichleru (Industry Ecourt)	Masher
1	Dr.Depinati SM	Proference & Chairmier, Dept of PG andies and research in Nonocheology. Doranegers University (Academic Expert)	Member
3	Mr.Gooras Mishea	Managing Atooclass &Pature Attorney, Bergers IP achievers, Bergerberg (Aburne))	Moniter
2	Or. Manja Deri	Penfaux & Head, IQAC-Mereber, Department of Electronics and Communication Engineering, The Oalbed College of Engineering, Dergolumi	Member
7	Dy.K.Valarmothy	Associate Preference, Department of Biotechnology, The Oxford Callege of Engineering, Bengalary,	Member
	Mrs.Sujatia R	Boffsone Englasser, Krobs and Redels Bassalere (Parest)	lavites
	Rakesh B.M(10X20B7018)	5 <sup>th</sup> Sensinter Student	levites

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E-Cepy to :

1.Dr.V.Sundersun

2.Dr.Gopinnik S.M.

3.Mr.Gauruv Mishra

4. Dr.Monja Devi

5.Dr.K.Valarreally

6 Mer.Sujatu R

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Chairperson :

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# THE OXFORD COLLEGE OF ENGINEERING

# DEPARTMENT OF BIOTECHNOLOGY

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# RESOLUTIONS TAKEN DURING DAC MEETING

fullowing no the list of Action Plan proposed by the DAC consolutes during the DAC Constitute marting unducted on 1/2/23 to implement in the Acadomic year 2022-25 liven Sconester

- Implementing Podagoginal initiatives in teaching and learning Process-Digital board, Instantan of All Issued tools., Flip flop classes, NPTEL, MOOCs videos.
- Implementation of Student Centric methods- field visits, Industrial visits, outreach programmers, Mini Projecta
- 3. Remedial Classes for Slow learners and testining for fast learners
- 4. Feedback analysis
- 5. Implementation of OISE: CO-PO-PSO attainments
- 6. Domains for Internship and Projects
- 7. Organizing Value added Course on Python Programming. and Workshop on Intellectual Property Rights.

Meinher Secretary Dr. B.K MANJUNATILA Professor & Head Department of Biotechnology Twiard College of Engineering

Revealers-660 068.

Chairpierson :

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# THE OXFORD COLLEGE OF ENGINEERING DEPARTMENT OF BIOTECHNOLOGY

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# ACTION PLAN FOR ACADEMIIC YEAR 2022-23 EVEN SEMESTER

5,00	MOMINO	Resolutions /Action Planned	Buter
1	1	Implementing Pedagogical Initiatives in Reaching and Jeanning Process	As instructed faculties implemented the dimmail padagogical methods in harning teaching process.
-	4	Implementation of Student Course methods	Implemented studiest controls methods such as Industrial wisits and point projects
3	3	Remotial Classes for Slave learners and training for fast learners	Remodul classes were conducted and training were given. Improvement from remodul to Normal is measured
4	4	Feedback analysis	Purchastic back was collected from all states holders and analyzed on the scale of 1-5 and sufferinged to 9QAC committee
5	5	Inglementation of OBE	The OBE matrix was implaneousl and followed as per 50%A gridelines
6	*	Dornalno for Internship and Projects	Descents and Industries and Projects were identified and implementat to students
7	5	Organizing Value added Courses and Wordshops	Value added Control on Pythins Programming and Workshop on IPE had been organized

Member Secretary pr. B.K MANJUNATHA Puptrespr & Head Department of Biotechnology The Caford College of Engineering Bengaturu-560 DBB.



Chuirperson FRINCIPAL The Oxford College of Engineering **Dominanahalii** Hosur Road Bengahuu-960 068

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Department Advisory Committee meeting on February 1st 2023 -reg:

The Oxford College of Engineering sespholibit@inecelord.etu-Tex kannikamary@gmail.com\_vsundsrasan@olmap.rex in.geurav@bananais.com.gopinath@davang areuniversity ac.in

Dear Sir/Matham,

- Subject: Department Advisory Committee meeting on Feb Lu 2023 -seg-

  - 1. Review of Previous DAC meeting 2. Strotegic Plan

  - 3. SWOT and Department Plan of action for Academic year 2022-23 Even
  - 4. To discuss Pedagogical Initiatives and Stadent Centric methods
  - 5. Implementation of OBE matrix
  - 6. Action Plan for slow and fast learners.
  - 7. Fred back analysis and Action Plan
  - 8. Finalizing the domain and Industries for Intereship and Project,
  - 9. Promoting Research Publications among Paculties and Students,
  - 10. Organizing Value added courses and workshops

Orecting from Department of Biotochnology11

Respected DAC members, The Department would like to take the views of DAC members on the above mentioned agends and to discuss department activity plan for the academic prov 2022-23 even semester on February 1º Wednesday 2023 at HODs shumber from 11 Am to 12.00 Pm. Please make yourself convenient to attend the Same

Records Dr. B K Munjuoatha, Professor and Head, Department of Biotechnology



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### TOCE/CSE/ DAC/2022-13/01

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Chairperson

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# 2. Master Time Table ...

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Test Binks	¥.5	Engineering Chernitry, Edinativy Dr. Mahesh B and Dr. Roemahese B	T-designed	Summer Publisher	2922
Reference	HI	Engranering Chemistry by P.C. Jain & Morrica Jain	16 <sup>th</sup> Tdilion	Rai Partheartern	2033

5 Faculty

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Profession and Heat

# THE OXFORD COLLEGE OF ENGINEERING

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical & Electronics Engineering Lesson Plan

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Date: 5/6/2023

Subject code	: 21EE42
Subject Title	: Digital System Design
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: IV
Academic Year	: 2022-23 (Even)
Faculty Name	: Mrs Nisha C Rani

# **COURSE OBJECTIVE:**

(1) Illustrate simplification of Algebraic equations using Karnaugh Maps and Quine-McClusky Techniques.

(2) Design combinational logic circuits.

(3) Design Decoders, Encoders, Digital Multiplexer, Adders, Subtractors and Binary Comparators

(4) Describe Latches and Flip-flops, Registers and Counters. (5) Analyze Mealy and Moore Models.

(6)Develop state diagrams, Synchronous Sequential Circuits and to understand the basics of various memories. Develop state diagrams, Synchronous Sequential Circuits and to understand the basics of various Memories

# **COURSE OUTCOME:**

Course outcomes (Course Skill Set): At the end of the course the student will be able to: (1)Develop simplified switching equation using Karnaugh Maps and QuineMcClusky techniques.

(2)Design of Combinational circuits. Design Multiplexer, Encoder, Decoder, Adder, Subtractors and Comparator as digital combinational control circuits.

(3)Design flip flops, counters, shift registers as sequential control circuits.

(4)Develop Mealy/Moore Models and state diagrams for the given clocked sequential circuits.

(5)Explain the functioning of Read only and Read/Write Memories, Programmable ROM, EPROM and Flash memory.

(6)Realize Boolean expressions, adders and subtractors using gates. and Design and test Ring counter/Johnson counter, Sequence generator and 3 bit counters.

# **PREREQUISITE**(s):

Basics of gates, Boolean algebra

					Text	Pedagogy	
Unit	Topic	Date	Tonic	Period	Referred		
Cint	No.	Dutt	1 opro		& Page		
			Dringinlag of Combinational Logicy		NO	DDT & Smort	
	1	5/6/23	Introduction	2	T1,R2	board	
			Definition of combinational logic		T1 R2	Chalk & Board	
	2	6/6/23	canonical forms,	2	11,112		
	3	7/6/23	Karnaugh maps-3,4,5 variables	5	T1,R2	Chalk & Board	
Ι	4	8/6/22	Numericals, Incompletely specified	1	T1,R2	Chalk & Board	
	4	8/0/23	functions (Don't care terms),	1			
	5	12/6/23	Simplifying Max term equations	2	T1,R2	Chalk & Board	
	6	13/6/23	Quine-McCluskey minimization technique	2	T1,R2	Chalk & Board	
	7	14/6/23	Quine-McCluskey using don't care terms,	5	T1,R2	Chalk & Board	
	,	1 0, 20	Reduced prime implicants Tables.		<b>T</b> 1 <b>D0</b>		
	8	15/6/23	Analysis and Design of Combinational	1	T1,R2	Chalk & Board	
			logic:		T1 D2	Challs & Doord	
	9	17/6/23	design	2	11,K2	Chark & Board	
	10	10/6/23	Adders and subtractors	2	T1 P2	Chalk & Board	
	10	20/6/23	Cascading full adders Look ahead carry	2	T1,R2	Chalk & Board	
	11	21/6/23	Binary comparators	5	T1,R2	Chalk & Board	
	13	22/6/23	Encoders	1	T1,R2	Chalk & Board	
п	14	26/6/23	digital multiplexers	2	T1.R2	Chalk & Board	
		27/6/23	Using multiplexers as Boolean function		T1.R2	Chalk & Board	
	15		generators	2	,		
	16	28/6/23	Numericals	5	T1,R2	Chalk & Board	
	17	1/7/23	Numericals	2	T1,R2	Chalk & Board	
	18	3/7/23	Decoders, BCD decoders,	2	T1,R2	Chalk & Board	
	19	4/7/23	Decoders, BCD decoders,	2	T1,R2	Chalk & Board	
	20	5/7/23	Numericals	5	T1,R2	Chalk & Board	
III	21	6/7/23	Flip-Flops: Basic Bistable elements.	1	T2,R2	PPT & Smart	
			r r r r r r r r r r r r r r r r r r r		T2 D2	board PPT & Smart	
	22	15/7/23	Latches, Timing considerations	1	12,62	board	
	22	22	17/7/23	The master-slave flip-flops (pulsetriggered	2	T2,R2	PPT & Smart
	23		flip-flops)	2		board	
	24	18/7/23	SR flip-flops, JK flip-flops	2	T2,R2	PPT & Smart	
		10/7/23		_	T2 P2	PPT & Smart	
	25	1911123	Edge triggered flip- flops	5	12,112	board	
		20/7/23			T2,R2	PPT & Smart	
	26		Characteristic equations.	1		board	
	27	24/7/23	Flip-Flops Applications: Introduction	2	T2,R2	PPT & Smart	
		25/7/23			T2 R2	PPT & Smart	
IV	28	2311123	Registers	2	1 2,112	board	
	29	26/7/23	Counters based on shift registers	5	T2,R2	PPT & Smart	
	30	2017172	hinary rinnle counters	1	Τ <b>2 Ρ</b> 2	Doard PPT & Smart	
	30	2111123	omary ripple counters	1	1 ∠,N∠	111 & Smart	

						board
	31	31/7/23	synchronous binary counters 2	2	T2,R2	PPT & Smart
	51		synemonous officiry counters,	<i>L</i>		board
	32	1/8/23	Design of a synchronous counter,	2	T2,R2	PPT & Smart
		2/9/22				board Challs & Doord
	33	218123	Design of a synchronous mod-n counter	5	12,R2	Chark & Board
			using clocked T, JK, D and SR flip-flops.			
	34	3/8/23	Design of a synchronous mod-n counter	1	T2,R2	Chalk & Board
		0,0,20	using clocked T, JK,FF	-	-	
	35	7/8/23	Design of counters exampls	2	T2,R2	Chalk & Board
	36	8/8/23	Design of counters exampls	2	T2,R2	Chalk & Board
	37	9/8/23	Design of counters exampls	5	T2,R2	Chalk & Board
	38	10/8/23	Design of counters exampls	1	T2,R2	Chalk & Board
	39	12/8/23	Sequential Circuit Design:	2	T2,R2	Chalk & Board
	40	14/8/23	Mealy and Moore models	2	T2,R2	Chalk & Board
	41	21/8/23	State machine notation		T2,R2	Chalk & Board
	42	22/8/23	Synchronous Sequential circuit analysis		T2,R2	Chalk & Board
	43	23/8/23	counter design.		T2,R2	Chalk & Board
	44	24/8/23	Memories: Read only and Read/Write		T2.R2	PPT & Smart
			Memories			board
	15	26/8/23			T2.R2	PPT & Smart
V	45	2010120	Programmable ROM			board
	46	28/8/23	EPROM Flash memory		T2,R2	PPT & Smart
		20/0/22				board
	47	29/8/23	Revision		12,R2	PPT & Smart
	10	30/8/23			T2 R2	PPT & Smart
	48	50/0/25	Revision		12,112	board
	40	31/8/23	Module 1 Revision		T2,R2	PPT & Smart
	77					board
	50	4/9/23	Module 2 Revision		T2,R2	PPT & Smart
		5/0/22	Modula 2 Pavision		T2 D2	DOARD PPT & Smart
	51	519125	Wodule 5 Revision		12,82	board
	50	6/9/23	Module 4 Revision		T2.R2	PPT & Smart
	32				,	board
	53	7/9/23	Module 5 Revision		T2,R2	PPT & Smart
		0/0/22				board
	54	919123	Previous Question Paper Discussion		12,82	board
		15/9/23			T2 R2	PPT & Smart
	55	1517125	Previous Question Paper Discussion		12,112	board

# Assignment Topics:

Sl.No		Торіс	References
1		Assignment Module 1	T1
2		Assignment Module 2	T1
3		Assignment Module 4,5	T2
	1 <sup>ST</sup> IN	TERNAL - 10/7/2023 - 12/7/2023	
	$2^{ND}$ IN	TERNAL - 16/8/2023 - 18/8/2023	
	3 <sup>RD</sup> IN	TERNAL - 11/9/2023 - 13/9/2023	

Book Type	Code	Publication Information

			Edition	Publisher	Year
		Digital Logic Applications and	ISBN 981-	Thomson	2001
Toyt Dools	Т1	Design, John M Yarbrough,	240-062-	Learning	2001
Text DOOKS		Digital Principles and Design	ISBN 978-0-	McGraw	2002
	T2	Donald D. Givone	07-052906-9.	Hill	2002
		Digital Circuits and Design D.	ISBN:9	Deerson	
	R1	P. Kothari and J. S Dhillon,	789332	2016	2016
			543539 2	2010	
Reference		Digital Design Morris Mano		Prentice	
Books	R2		3rd	Hall of	-
				India	
		Fundamentals of logic design	5th	Cengage	
	R3	Charles H Roth, Jr.,	Jui	Learning.	-





Faculty

# THE OXFORD COLLEGE OF ENGINEERING

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan - 2022 – 2023 (EVEN)

Date: 01 /05/2023

COURSE OB IECT	TIVE.
Faculty Name	: Dr.B.Devi Vighneshwari
Academic Year	: June 2023 – Sep 2023
Semester	: IV
Course / Branch	: BE (Electrical & Electronics Engineering)
Subject Title	: Microcontroller
Subject code	: 21EE43

# **COURSE OBJECTIVE:**

- To explain the internal or organization and working of computers, microcontrollers and embedded processors also to compare and contrast the various members of the 8051 family.
- To explain in detail the execution of 8051 assembly language instructions and data types and also to explain loop, conditional and unconditional jump and call, handling and manipulation of I / O instructions.
- To explain develop 8051C programs for time delay, I/O operations, I/O bit manipulation, logic, arithmetic operations and data conversions.
- To explain develop 8051C serial port programming.
- To explain in detail the interfacing of various devices with 8051 C processor.
- To explain about various interrupt routines

# **COURSE OUTCOME:**

CO1 Outline the 8051 architecture, registers, internal memory organization, addressing modes

CO2 Discuss 8051 addressing modes, instruction set of 8051, accessing data and I/O port programming.

CO3 Develop 8051C programs for time delay, I/O operations, I/O bit manipulation, logic and arithmetic operations, data conversion and timer/counter programming.

CO4 Summarize the basics of serial communication and interrupts, also develop 8051 programs for serial data communication and interrupt programming

CO5 Program 8051to work with external devices for ADC, DAC, Stepper motor control, DC motor control.

# PREREQUISITE(s):

Basics of different microprocessor families Logic functions and basics of logic circuits

Unit	Topic No.	Date	Торіс	Text Referred	Pedagogy
П	1.	05/06/23	Module 2: Assembly Programming and Instruction of 8051 Introduction	TI, R1	Chalk & Talk / PPT/ Programming
	2.	07/06/23	Arithmetic Instructions - With Programs	TI, R1	Chalk & Talk / PPT/ Programming

	3.	08/06/23	Logical Instructions - With Programs	TI, R1	Chalk & Talk
					/ PPT/
					Programming
			Arithmatic Instructions With		Chalk & Talk
	4.	08/06/23	Programs	TI, R1	/ PPT/
					Programming
		12/06/23	Logical Instructions - With Programs		Chalk & Talk
	5.			TI, R1	/ PPT/
					Programming
		14/06/23	Jump Instructions - With Programs	TI, R1	Chalk & Talk
	6.				/ PPT/
					Programming
	_	1.710.610.0			Chalk & Talk
	7.	15/06/23	Loop Instructions with Programs	TI, RI	/ PP1/
					Programming
	0	15106100			Chalk & Talk
	8.	15/06/23	Call Instructions with Programs	TI, R1	/ PP1/
					Programming
	0	17/06/02	L/ O Dro group in a		Chaik & Taik
	9.	17/06/23	I/ O Programming	TI, R1	/ PP1/
	10. 1	10/06/23	Running of the Programs	TI R1	/ DPT/
		19/00/23		11, 1(1	Programming
			Module1: 8051 Microcontroller		Chalk & Talk
	11.	21/06/23	<b>Basics</b> - Introduction, Various Processors	TL R1	/ PPT/
					Programming
		22/06/23	Block Diagram and Internal Memory Organizations	TI, R1	Chalk & Talk
	12.			,	/ PPT/
					Programming
		26/06/23	Stack and Addressing Modes	TI, R1	Chalk & Talk
	13.				/ PPT/
					Programming
	14. 2	14. 28/06/23	Register Banks, PSW, Flag bits	TI, R1	Chalk & Talk
					/ PPT/
					Programming
		30/06/23	Stack Operations	TI, R1	Chalk & Talk
	15.				/ PPT/
-				<b>TT D</b> 4	Programming
Ι				TI, R1	Chalk & Talk
	16.	01/07/23	I/O Port usage		/ PP1/
					Programming
	17	01/07/02		11, R1	Chalk & Talk
	1/.	01/07/23	Nemory decoding - Introduction		/ PP1/
					Challe & Tall-
	18.	18. 03/07/23	Memory decoding - Examples	11, K1	Unaik & Talk
					/ FF I/ Programming
	10	05/07/22	Problems in Mamory Deceding	TID1	
	17.	05101125	r roorenns in mennory Decouning	11, 111	

					/ PPT/
					Programming
	20.	06/07/23		TI, R1	Chalk & Talk
			Problems in Memory Decoding		/ PP1/
			Modulo 2: 8051 Programming in C	TID1	Challe & Talle
	21	06/07/23	Noule 5: 8051 Programming in C	11, K1	/ DDT/
	21.	00/07/25	- with calculations		Programming
	22.	15/07/23	I/O Programming, Logic Operations in C	TI, R1	Chalk & Talk / PPT/ Programming
				TI D1	Chalk & Talk
	23.	17/07/23	Data conversion Programs, Data serialization	11, K1	/ PPT/ Programming
				TI D1	Chalk & Talk
	24	19/07/23	Accessing Code ROM space	11, K1	/ PPT/
	27.	17/0/125	Recessing code Row space		Programming
				TI. R1	Chalk & Talk
	25.	20/07/23	8051 Timer Programming:		/ PPT/
			Introduction		Programming
	26.	20/07/23	Counter - Different Modes	TI, R1	Chalk & Talk
					/ PPT/
Ш					Programming
	27.	24/07/22	Counter - Different Modes		Chalk & Talk
		24/07/23		T1, R1	/ PP1/
			Programming of Counters		Chalk & Talk
	28	26/07/23		TI R1	/ PPT/
	20.	20/07/20		11, 111	Programming
			Programming of Counters		Chalk & Talk
	29.	27/07/23		TI, R1	/ PPT/
					Programming
		. 27/07/23	Design Calculations		Chalk & Talk
	30.			TI, R1	/ PPT/
					Challs & Talls
	31.	31/07/23	Module 4: Serial Port and Interrupt Introduction	TI, R1	/  PPT/
					Programming
					Chalk & Talk
IV	32.	02/08/23	Basics of serial communication	TI, R1	/ PPT/
					Programming
	33.				Chalk & Talk
		03/08/23	Connections of Serial Port	TI, R1	/ PPT/
					Programming
	34.	03/08/23	Serial Port programming in assembly	TI, R1	Chaik & Talk
					/ FF1/ Programming
					Chalk & Talk
	35.	07/08/23	Serial Port Programming in C	TI, R1	/ PPT/

					Programming	
					Chalk & Talk	
	36.	09/08/23	8051 Interrupts - Introduction	TI, R1	/ PPT/	
					Programming	
					Chalk & Talk	
	37.	10/08/23	Timer Interrupts	TI, R1	/ PPT/	
					Programming	
					Chalk & Talk	
	38.	10/08/23	External Hardware Interrupts	TI, R1	/ PPT/	
					Programming	
					Chalk & Talk	
	39.	12/08/23	Module 5: Interfacing - Introduction	TI, R1	/ PPT/	
					Hardware	
					Chalk & Talk	
	40.	14/08/23	Motor Control - DC, Stepper motor	TI, R1	/ PPT/	
					Hardware	
			DAC Programming		Chalk & Talk	
	41.	21/08/23		TI, R1	/ PPT/	
					Hardware	
	42.	23/08/23	ADC Programming	TI, R1	Chalk & Talk	
					/ PPT/	
					Hardware	
	43. 24	24/08/23	Key board interfacing	TI, R1	Chalk & Talk	
					/ PPT/	
V					Hardware	
•					Chalk & Talk	
	44.	24/08/23	LCD interfacing	TI, R1	/ PPT/	
					Hardware	
	45. 26/		8255 Interfacing	TI, R1	Chalk & Talk	
		26/08/23			/ PPT/	
					Hardware	
					Chalk & Talk	
	46.	28/08/23	Sensor interfacing	TI, R1	/ PPT/	
					Hardware	
	47.	30/08/23	Revision of Module 1	TI, R1	Chalk & Talk	
	48.	31/08/23	Revision of Module 2	TI, R1	Chalk & Talk	
	49.	04/09/23	Revision of Module 3	TI, R1	Chalk & Talk	
I, II,	50.	06/09/23	Revision of Module 4	TI, R1	Chalk & Talk	
III,	51.	07/09/23	Revision of Module 5	TI, R1	Chalk & Talk	
IV,	52.	07/09/23	VTU Question Paper - 1	TI, R1	Chalk & Talk	
V	53.	09/09/23	VTU Question Paper - 2	TI, R1	Chalk & Talk	
As	Assignment Topics:					

Sl.No	Торіс	References
1	Open Book Test / Class Test / Assignment (Module 1 & 2)	R2 & T1
2	Open Book Test / Class Test / Assignment (Module 3 & 4)	T1 & R2
3	Open Book Test / Class Test / Assignment (Module 5)	T1 & R2

Dools Trues	Code		Publica	ation Informa	Information	
воок туре		Title & Author	Edition	Publisher	Year	
Text Books	T1	The 8051 Microcontroller and embedded systems using Assemble and C, Muhammad Ali Mazadi	2nd Edition	Pearson	2008	
	T2	The 8051 Microcontroller, Kenneth Ayala	3rd Edition	Cengage Learning	2005	
Boforonco	R1	The 8051 Microcontroller and Embedded Systems, Manish K Patel	1st Edition	McGraw Hill	2014	
Books	R2	Microcontrollers: Architecture, Programming, Interfacing and System Design, Rajkamal	1st Edition	Pearson	2012	

(Dr.B.Devi Vighneshwari) Faculty (Dr.Bharath V S) HOD / EEE

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# THE OXFORD COLLEGE OF ENGINEERING

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical and Electronics Engineering

Lesson Plan

Date:02/06/23

Subject code	: 21EE44
Subject Title	: Electric Motors
Course / Branch	: BE/EEE
Semester	: IV
Academic Year	: 2022-2023-Even Sem
Faculty Name	: Mrs Resna S R

### **Course Objectives:**

(1)To study the constructional features of Motors and select a suitable drive for specific application.

(2)To study the constructional features of Three Phase and Single phase induction Motors.(3)To study different test to be conducted for the assessment of the performance characteristics of motors.

(4)To study the speed control of motor by a different methods.

(5)Explain the construction and operation of Synchronous motor and special motors.

**PREREQUISITE(s):** Basic Electrical Engineering, Circuit theory

Module	Topic No.	Date	Торіс	Text Referred &Page	Pedagogy
	1	5/6/23	Introduction, Classification of dc motors		PPT,Chalk&Board
	2	6/6/23	Back emf, significance of back emf		PPT,Chalk&Board
	3	7/6/23	Torque equation, Problems		PPT,Chalk&Board
	4	8/6/23	Characteristics of shunt, Series & Compound motors		PPT,Chalk&Board
	5	12/6/23	Speed control of shunt, Series and Compound motors	T1 :285-407	PPT,Chalk&Board
т	6	13/6/23	Application of motors		PPT,Chalk&Board
1	7	14/6/23	DC motor starters – 3 point		PPT,Chalk&Board
	8	15/6/23	4 point starter		PPT,Chalk&Board
	9	17/6/23	Losses and efficiency- Losses in DC motors, Power flow diagram, problems		PPT,Chalk&Board
	10	19/6/23	Efficiency, Condition for maximum efficiency		PPT,Chalk&Board
	11	20/6/23	Problems		PPT,Chalk&Board
	12	21/6/23	Problems		PPT,Chalk&Board
	13	22/6/23	Problems		PPT,Chalk&Board
	14	26/6/23	<b>Testing of DC Motors-</b> Direct & indirect methods of testing of DC motors-Brake test	T1:412-423	PPT,Chalk&Board
	15	27/6/23	Swinburne's test, Retardation test		PPT,Chalk&Board
	16	28/6/23	Hopkinson's test, Field's test		PPT,Chalk&Board
	17	1/7/23	Merits and demerits of tests, Problems		PPT,Chalk&Board
	18	3/7/23	<b>Three phase Induction Motor</b> -Review of concept and generation of rotating magnetic field		PPT,Chalk&Board
	19	4/7/23	Principle of operation, construction		PPT,Chalk&Board
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	20	5/7/23	classification and types		PPT,Chalk&Board
	21	6/7/23	squirrel-cage, slip-ring,Slip		PPT,Chalk&Board
	22	13/7/23	Torque equation		PPT,Chalk&Board
	23	15/7/23	Torque-slip characteristic covering motoring, Generating and braking regions	T1:593-613	PPT,Chalk&Board
II	24	17/7/23	Maximum torque, Significance of slip		PPT,Chalk&Board
	25	18/7/23	Problems		PPT,Chalk&Board
	26	19/7/23	Problems		PPT,Chalk&Board
	27	20/7/23	Phasor diagram of induction motor on no load and on load		PPT,Chalk&Board
	28	24/7/23	Equivalent circuit		PPT,Chalk&Board
	29	25/7/23	Performance Of Induction Motor-Losses	T1:614-688	PPT,Chalk&Board
	30	26/7/23	No-load and blocked rotor tests		PPT Chalk&Board
	50	20/11/25	Performance of the motor from the circle		PPT.Chalk&Board
	31	27/7/23	diagram and equivalent circuit		
	32	31/7/23	Cogging and crawling		PPT,Chalk&Board
Ш	33	1/8/23	High torque rotors-double cage and deep rotor bars		PPT,Chalk&Board
	34	2/8/23	Equivalent circuit and performance evaluation of double cage induction motor		PPT,Chalk&Board
	35	3/8/23	Induction motor working as induction		PPT,Chalk&Board
	36	4/8/23	Problems		PPT.Chalk&Board
	37	7/8/23	Problems		PPT,Chalk&Board
	38	8/8/23	Problems		PPT,Chalk&Board
	39	9/8/23	Problems		PPT,Chalk&Board
	40	10/8/23	Problems		PPT,Chalk&Board
	41	14/8/23	Need for starter, Direct on line starting	T1:638-734	PPT,Chalk&Board
	42	21/8/23	Star-Delta and autotransformer starting		PPT,Chalk&Board
		22/8/23	Rotor resistance starting, Speed control by		PPT,Chalk&Board
	43		voltage,		
		22/0/22	frequency and rotor resistance methods		
IV	4.4	23/8/23	Single phase induction motor-Double		PPT,Chalk&Board
	44		operation		
		24/8/23	Construction and operation of split-phase.		PPT.Chalk&Board
	45		Capacitor startCapacitor run induction		,
			Motor		
		26/8/23	shaded pole motor Comparison of single		PPT,Chalk&Board
	46		phase motors and applicationsmotors,		
	47	20/0/22	Problems		
	4/	28/8/23	Problems		PPT, Chalk&Board
	48	29/8/23		TT1.444 454	PPT Chalk & Board
	49	30/8/23	Principle of operation, Phasor diagrams	11:444-454	rri, Chaik & Board

	50	31/8/23	Torque and torque angle,Blondel diagram	:543-555	PPT,Chalk&Board
V	51	4/9/23	Effect of change in load, Effect of change		PPT,Chalk&Board
	51		in excitation		
	50	5/9/23	V and inverted V Curves, Synchronous		PPT,Chalk&Board
	52		condenser		
	53	6/9/23	Hunting and damping		PPT,Chalk&Board
	54	7/9/23	Methods of starting synchronous		PPT,Chalk&Board
			motors		
	55	9/9/23	Construction and operation of Universal	T1:740-746	PPT,Chalk&Board
			motor		
	56	14/9/23	AC servomotor, Linear induction motor,		PPT,Chalk&Board
	50		Stepper motor		

#### **Outcomes of the Course:**

At the end of the course the student will be able to:

1. Explain the construction, operation and classification of DC Motor and AC motor

2.Describe the performance characteristics and applications of Electric motors.

3.Demonstrate and explain the methods of testing of DC machines and determine losses and efficiency.

4.Explain the methods of Controlling the speed of DC motor and induction motor.

5.Explain the starting methods, equivalent circuit and phasor diagrams, torque angle, effect of change in excitation and change in load, hunting and damping of synchronous motors

6.Explain the construction, operation of special purpose motors.

	Assignment Topics:	
Sl.No	Topic	References
1	Module 1&2	T1
2	Module 2&3	T1

#### **Text Books:**

T1: Electric Machines D. P. Kothari, I. J. Nagrath McGraw Hill 4th edition, 2011

**T2:** Theory of Alternating Current Machines Alexander Langsdorf McGraw Hill 2nd Edition, 2001

**T3:** Electric Machines Ashfaq Hussain Dhanpat Rai & Co 2nd Edition, 2013

#### **Reference Books:**

**R1:**Electrical Machines, Drives and Power systems Theodore Wildi Pearson 6th Edition, 2014

R2: Electrical Machines M.V. Deshpande PHI Learning 2013

Faculty

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# THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

**Department of Electrical and Electronics Engineering** 

# Lesson Plan

Date:04/06/2023

Subject code	: 21EEL46
Subject Title	: ELECTRICAL MACHINES LABORATORY - II
Course / Branch	: B.E/EEE
Semester	: <b>IV</b>
Academic Year	: 2022-2023(Even Sem)
Faculty Name	: Mrs.Resna S R
Course objectives	

# Jourse objectives

(1)To perform tests on DC machines to determine their characteristics.

- (2)To control the speed of DC motor.
- (3)To conduct test for pre-determination of the performance characteristics of DC machines
- (4)To conduct load test on single phase and three phase induction motor.
- (5)To conduct test on induction motor to determine the performance characteristics.
- (6)To conduct test on synchronous motor to draw the performance curves..

	TOPIC NO.	DATE	ΤΟΡΙϹ
	1	5/6/23&	Load test on dc shunt motor to draw speed – torque and horse
	2	9/0/23	power- enciency characteristics.
	2	12/6/23& 16/6/23	Speed control of dc snunt motor by armature and field control
	3	19/6/23 & 23/6/23	Load test on three phase induction motor
CYCLE I	4	26/6/23& 30/6/23	Load test on single phase induction motor to draw output versus torque, current, power and efficiency characteristics
	5 3/7/23& Conduct suit 7/7/23 single phase parameters		Conduct suitable tests to draw the equivalent circuit of single phase induction motor and determine performance parameters
	6	17/7/23& 14/7/23	No load and Blocked rotor test on three phase induction motor to draw (i) equivalent circuit and (ii) circle diagram. Determination of performance parameters at different load conditions from (i) and (ii).
CYCLE II	7	21/7/23& 24/7/23	Regenerative test (Hopkinson test) on dc shunt machines
	8	28/7/23& 31/7/23	Retardation test on dc shunt motor.
	9	4/8/23& 7/8/23	Swinburne's Test on dc motor.
	10	11/8/23& 14/8/23	Conduct an experiment to draw V and $\Lambda$ curves of synchronous motor at no load and load conditions
	11	21/8/23& 25/8/23	Field Test on dc series machines
	12	28/8/23& 1/9/23	Load test on induction generator.
	13	4/9/23	Repetition Class
	14	8/9/23	Repetition Class

### **Course outcomes:**

At the end of the course the student will be able to:

(1)Test DC machines to determine their characteristics and also to control the speed of DC motor.

(2)Pre-determine the performance characteristics of DC machines by conducting suitable tests.

(3)Perform load test on single phase and three phase induction motor to assess its performance.

(4)Conduct test on induction motor to pre-determine the performance characteristics. (5)Conduct test on synchronous motor to draw the performance curves.

Faculty

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HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical and Electronics Engineering

Lesson Plan

Date: 20/03/2023

Subject code/Title	: 18EE61/ Control Systems
Course / Branch	: BE/EEE
Semester	: VI
Academic Year	: 2022-23 (EVEN)
Faculty Name	: Mrs. Mounika Sharon

# **COURSE OBJECTIVES:**

To define a control system

To explain the necessity of feedback and types of feedback control systems.

To introduce the concept of transfer function and its application to the modeling of linear systems.

To discuss the stability of linear time invariant systems and Routh - Hurwitz criterion.

To obtain transfer function of systems through block diagram manipulation and reduction.

To use Mason's gain formula for finding transfer function of a system.

To demonstrate mathematical modeling of control systems, components and to develop design criteria for manipulating the time response in terms of time domain response specification.

To discuss transient and steady state time response of a simple control system.

To investigate the trajectories of the roots of the characteristic equation when a system parameter is varied.

To conduct the control system analysis in the frequency domain.

To determine the controller or compensator configuration and parameter values relative to how it is connected to the controlled process given the design specifications

### **PREREQUISITE**(*s*) : Network and Circuits, Basic Engineering Mathematics

`	Topic No.	Date	Торіс	Books Referred & Pages	Pedagogy
	1	20/03/23	Introduction, Classification of control systems.	T1:80-81	Chalk and
		20/03/25		R2:1-5	Talk
	2	21/03/23	Modelling of mechanical system elements	T1:80-84	Chalk and
		21/03/23		R2:6-20	Talk
	3	22/02/22	electrical systems, Analogous systems	R2:21-25	Chalk and
		23103123			Talk
	4		Transfer function, Single input single output	R2:25-30	Chalk and
		23/03/23	systems, Procedure for deriving transfer		Talk
			functions		
	5	25/02/22	problems	R2:30-34	Chalk and
		23103123			Talk
	6	25/02/22	problems	R2:34-39	Chalk and
		23103123			Talk
	7	27/02/22	problems	T1:84-86	Chalk and
		21105125			Talk
	8	20/02/22	problems	T1:86-90	Chalk and
		20103123			Talk
	9	29/03/23	servomotors	T1:90-108	Chalk and

				R2:6-20	Talk
	10	20102122	Gear trains	R2:12-14	Chalk and
	10	30/03/23			Talk
	11	30/03/23	synchros	R2:19-20	Chalk and Talk
	12	04/04/23	Problems	R2:19-20	Chalk and Talk
	13	05/04/23	Revision, VTU QP discussion	R2:87-90	Chalk and Talk
	14	06/04/23	Module 1 – Class test	R2:91-94	-
	15	06/04/22	Class Test on discussion	R2:95-98	Chalk and
		00/04/23	Class Test qp discussion		Talk
	16	10/04/23	Block diagram of a closed loop system	T1:301-302	Chalk and
		11101100		<b></b>	Talk
	17	11/04/23	Procedure for drawing block diagram and block	T1:302-304	Chalk and
	10	12/04/22	diagram reduction to find transfer function.	T1.204.212	I alk
	18	12/04/23	Construction of signal flow graphs	11:304-312	Chalk and
	10	12/04/22	basic properties of signal flow graph signal	D2.164 166	Chalk and
	19	13/04/23	flow graph algebra construction of signal flow	K2.104-100	Chark and Talk
			graph for control systems		I dik
	20	13/04/23		T1:313-318	Chalk and
			problems		Talk
	21	17/04/23	problems	R2:166-169	Chalk and Talk
	22	18/04/23	problems	T1:313-318	Chalk and
п					Talk
11	23	19/04/23	problems	R2:169-172	Chalk and
					Talk
	24	20/04/23	problems	T1:313-318	Chalk and Talk
	25	20/04/23	Problems	T1:313-318	Chalk and
					Talk
	26	27/04/23	Problems	R2:166-169	Chalk and
	27	27/04/22		D2.160 172	Talk Challs and
	27	27/04/25	Problems	K2:109-172	Chaik and Talk
	28	02/05/23		T1·318-322	Chalk and
	20	02/03/23	Revision, VTU QP discussion	11.510 522	Talk
	29	03/05/23		R2:199-205	Chalk and
			Module 1 – Class test		Talk
	30	04/05/23	Class Test qp discussion	R2:205-210	-
	31	04/05/23	Standard test signals, relative stability analysis	T1:342-343	Chalk and
					Talk, PPT
	32	06/05/23	time response of first order systems	T1:343-349	Chalk and
	22	00/05/02		T1.240.271	Talk, PPT
111	33	08/05/23	time response of second order systems	11:349-351	Chalk and
	21	00/05/22	standy state errors and error constants	T1.251 252	Taik, PPI
	54	09/03/23	steady state citors and citor constants	11.331-333	Talk PPT
	35	10/05/23	Types of control systems	T1:353-354	Chalk and

					Talk, PPT
	36	11/05/23	problems	T1:354-358	Chalk and
					Talk, PPT
	37	11/05/23	problems	T1:359-366	Chalk and
					Talk, PPT
	38	15/05/23	BIBO stability, Necessary conditions for	R2:61-64	Chalk and
			stability		Talk, PPT
	39	16/05/23	problems	R2:64-70	Chalk and
					Talk, PPT
	40	17/05/23	Routh stability criterion, difficulties in	R2:70-85	Chalk and
			formulation of Routh table		Talk, PPT
	41	18/05/23	problems	R2:82-86	Chalk and
	10	10/05/00		D. 1 (0, 150	Talk, PPT
	42	18/05/23	application of Routh stability criterion to linear	R2:169-172	Chalk and
	10	20/05/22	feedback systems, problems	<b>DO 07 00</b>	Talk, PPT
	43	20/05/23	problems	R2:97-98	Chalk and
	4.4	22/05/22	Deleting et delliter en electe	<b>D2</b> .00.00	Talk, PP1
	44	22/05/23	Relative stability analysis	K2:98-99	- Challs and
	43	25/05/25	Introduction, root locus concepts	11:309-370	
	16	24/05/22	construction of root looi rules for the	T1.270 271	Challs and
	40	24/03/23	construction of root locus	11.3/0-3/1	
	17	25/05/23	problems	T1·371 373	Chalk and
	47	23103123	problems	11.3/1-3/3	Talk
	48	25/05/23	nrohlems	R2.213_215	Chalk and
	-10	25/05/25	problems	R2.215 215	Talk
	49	29/05/23	problems	R2:213-215	Chalk and
	.,		Proceeding	1121210 210	Talk
	50	30/05/23	Co-relation between time and frequency	T1:374-376	Chalk and
IV			response – 2nd order systems only		Talk
	51	31/05/23	problems	R2:215-217	Chalk and
					Talk
	52	04/06/23	problems	T1:376-384	Chalk and
					Talk
	53	05/06/23	General procedure for constructing bode plots,	R2:217-221	Chalk and
	~ .	0.610.6100	computation of gain margin and phase margin	<b>E1 205 205</b>	Talk
	54	06/06/23	problems	11:385-387	Chalk and
	55	07/06/02		D2:222.220	I alk
	55	07/00/25	Revision, VTU QP discussion	R2:225-259	
	56	07/06/22	Modulo 4 Class test	D2.212 212	Talk
	57	12/06/23	Principle of argument	$\frac{11.403-400}{11.403}$	- DDT
	58	13/06/23	Nyquist stability criterion	T1:403-407	PPT
	59	14/06/23	assessment of relative stability using Nyouist	R2:246-249	PPT
	57	14/00/23	criterion	<b>R2.2</b> +0 2+7	111
	60	15/06/23	Introduction Design with the PD Controller.	T1:410-413	РРТ
V	00	10,00,20	Design with the PI Controller	11110 115	
	61	15/06/23	Design with the PID Controller. Design with	R2:249-252	PPT
			Phase-Lead Controller		
	62	17/06/23	Design with Phase - Lag Controller ,Design	T1:423-426	PPT

		with Lead-Lag Controller		
63	19/06/23	Principle of argument	R2:252-254	PPT
64	20/06/23	Nyquist stability criterion,	T1:427-430	PPT
65	21/06/23	Problems	R2:254-262	PPT
66	22/06/23	Problems	T1:448-454	PPT
67	26/06/23	Module 5– Class test	R2:277-278	-
68	27/06/23	Question Paper Discussion Module 1	VTU QP	Chalk and
		Question Paper Discussion - Module 1		Talk
69	28/06/23	Question Paper Discussion Module 2	VTU QP	Chalk and
		Question 1 aper Discussion - Module 2		Talk
70	01/07/23	Question Paper Discussion Module 3	VTU QP	Chalk and
		Question 1 aper Discussion - Module 5		Talk
71	06/07/23	Question Paper Discussion Module 4	VTU QP	Chalk and
		Question Paper Discussion - Module 4		Talk
72	10/07/23	Question Paper Discussion Module 5	VTU QP	Chalk and
		Question 1 aper Discussion - Module 5		Talk

# **COURSE OUTCOMES:**

- Discuss the effects of feedback and types of feedback control systems ,Demonstrate the knowledge of mathematical modeling of control systems and components &Evaluate the transfer function of a linear time invariant system.
- Apply block diagram manipulation and signal flow graph methods to obtain transfer function of systems.
- Evaluate the stability of linear time invariant systems
- Determine transient and steady state time response of a simple control system.
- Investigate the performance of a given system in time and frequency domains using bode plots and Nyquist plots
- Determine the controller or compensator configuration and parameter values relative to how it is connected to the controlled process

# **Assignment Topics**

Sl. No.	Assignment Topics	Submission due on
1	Assinment-1	21/04/2023
2	Assignment-2	26/05/2023
3	Assignment-3	30/06/2023

Book	Code		Publication Information		
Туре	Coue	Title & Author	Edition	Publisher	Year
Text		Control systems, Anand Kumar	2ND	рні	2014
Books	T <b>1</b>		2110	1111	2011
	R1	Automatic Control Systems, Farid Golnaraghi, Benjamin C. Kuo	9th	Wiley	2010
Reference Books	R2	Control Systems Engineering Norman S. NisE	4th	Wiley	2004
	R3	Control Systems, Principles and Design M.Gopal	4th Edition	McGaw Hill	2012

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical and Electronics Engineering

Lesson Plan

Date: 20/03/2023

Subject code/Title	: 18EE62/ Power System Analysis-1
Course / Branch	: BE/EEE
Semester	: VI
Academic Year	: 2022-23 (EVEN)
Faculty Name	: Mrs. Sumitha T L

# **COURSE OBJECTIVES:**

- To explain analysis of three phase symmetrical faults on synchronous machine and simple power systems and to discuss selection of circuit breaker.
- To explain symmetrical components, their advantages and the calculation of symmetrical components of voltages and currents in un-balanced three phase circuits.
- To explain the concept of sequence impedance and sequence networks of an unloaded synchronous generator, transformers and transmission lines.
- To explain the analysis of synchronous machine and simple power systems for different unsymmetrical faults using symmetrical components.
- To discuss the dynamics of synchronous machine and derive the power angle equation for a synchronous machine
- Discuss stability and types of stability for a power system and the equal area criterion for the evaluation of stability of a simple system.

`	Topic No.	Date	Торіс	Books Referred & Pages	Pedagogy
	1	20/03/23	<b>Representation of Power System</b>	T1:80-81	Chalk and
		20103123	Components: Introduction	R2:1-5	Talk
	2	21/03/23	Single phase representation of balanced three	T1:80-84	Chalk and
		21/03/23	phase networks, One line diagram	R2:6-20	Talk
	3	22/02/22	Impedance or resotance Disgram	R2:21-25	Chalk and
		25/05/25	Impedance of feactance Diagram		Talk
	4	22/02/22	Problems on pu calculations	R2:25-30	Chalk and
		25/05/25			Talk
	5	25/02/22	Por unit system problems	R2:30-34	Chalk and
т		23103123	r er unn system – problems		Talk
1	6	25/02/22	Broblams on par unit system	R2:34-39	Chalk and
		23103123	Floblenis on per unit system		Talk
	7	27/02/22	Problems on pu colculations	T1:84-86	Chalk and
		21105125	Problems on pu calculations		Talk
	8	8 28/02/22 Problems on pu calculations	T1:86-90	Chalk and	
		20/05/25	Problems on pu calculations		Talk
	9	20/02/22	Steady state model of synchronous machine,	T1:90-108	Chalk and
		29103123	Power transformer, Transmission Lines, load	R2:6-20	Talk
	10	30/03/22	Three winding transformer	R2:12-14	Chalk and
	10	50/05/25			Talk

# **PREREQUISITE**(s): Knowledge about Machines, Switch gear components

	11	20/02/22	Due his sure a second dimension of a sure second	R2:19-20	Chalk and
		30/03/23	Problems on 3 winding transformers		Talk
	12     04/04/23     Problems on transformers				Chalk and Talk
	13	05/04/23	Revision, VTU QP discussion	R2:87-90	Chalk and Talk
	14	06/04/23	Module 1 – Class test	R2:91-94	-
	15	06/04/23	Class Test qp discussion	R2:95-98	Chalk and Talk
	16	10/04/23	<b>Symmetrical Fault Analysis:</b> Introduction- Fault, Types	T1:301-302	Chalk and Talk
	17	11/04/23	Transient due to short circuit in transmission lines	T1:302-304	Chalk and Talk
	18	12/04/23	Transient due to Short Circuit in alternators on no load	T1:304-312	Chalk and Talk
	19	13/04/23	Fault analysis procedure – KVL and Thevenin's method	R2:164-166	Chalk and Talk
	20	13/04/23	Problems on symmetrical fault analysis – KVL method	T1:313-318	Chalk and Talk
	21	17/04/23	Problems on symmetrical fault analysis – KVL method	R2:166-169	Chalk and Talk
	22	18/04/23	Problems on symmetrical fault analysis – KVL method	T1:313-318	Chalk and Talk
Π	23	19/04/23	Problems on symmetrical fault analysis – KVL method	R2:169-172	Chalk and Talk
	24	20/04/23	Problems on symmetrical fault analysis – Thevenin's method	T1:313-318	Chalk and Talk
	25	20/04/23	Problems on symmetrical fault analysis – Thevenin's method	T1:313-318	Chalk and Talk
	26	27/04/23	Problems on symmetrical fault analysis – Thevenin's method	R2:166-169	Chalk and Talk
	27	27/04/23	Problems on symmetrical fault analysis – Thevenin's method	R2:169-172	Chalk and Talk
	28	02/05/23	Selection of Circuit Breakers	T1:318-322	Chalk and Talk
	29	03/05/23	Revision, VTU QP discussion	R2:199-205	Chalk and Talk
	30	04/05/23	Module 2 – Class test	R2:205-210	-
	31	04/05/23	Symmetrical Components: Introduction	T1:342-343	Chalk and Talk, PPT
	32	06/05/23	Symmetrical component transformation	T1:343-349	Chalk and Talk, PPT
	33	08/05/23	Phase shift in Star delta	T1:349-351	Chalk and Talk, PPT
Ш	34	09/05/23	Sequence Impedance of transmission lines	T1:351-353	Chalk and Talk, PPT
	35	10/05/23	Sequence networks of Power system	T1:353-354	Chalk and Talk, PPT
	36	11/05/23	Sequence networks of machines	T1:354-358	Chalk and Talk, PPT
	37	11/05/23	Sequence networks of Transformers	T1:359-366	Chalk and

					Talk, PPT
	38	15/05/23		R2:61-64	Chalk and
			Problems on sequence networks		Talk, PPT
	39	16/05/23		R2:64-70	Chalk and
			Problems on sequence networks		Talk, PPT
	40	17/05/23	Drohlama on coquence notworks	R2:70-85	Chalk and
			Problems on sequence networks		Talk, PPT
	41	18/05/23	Problems on seguence networks	R2:82-86	Chalk and
			Troblems on sequence networks		Talk, PPT
	42	18/05/23	Assignment & tutorial problem discussion	R2:169-172	Chalk and
			Assignment & tutorial problem discussion		Talk, PPT
	43	20/05/23	Revision VTU OP discussion	R2:97-98	Chalk and
					Talk, PPT
	44	22/05/23	Module 3– Class test	R2:98-99	-
	45	23/05/23	Unsymmetrical Fault Analysis: Introduction	T1:369-370	Chalk and
			Chsymmetrical Fault Analysis. Introduction		Talk
	46	24/05/23	Symmetrical component analysis of	T1:370-371	Chalk and
			unsymmetrical faults		Talk
	47	25/05/23	Single line to ground fault	T1:371-373	Chalk and
	10				Talk
	48	25/05/23	Problems on single line to ground fault	R2:213-215	Chalk and
	10	20105122		D0 010 015	Talk
	49	29/05/23	Problems on single line to ground fault	R2:213-215	Chalk and
	50	20/05/22		<b>T</b> 1 274 276	
<b>TX</b> 7	50	30/05/23	Line to line fault	11:3/4-3/6	
IV	51	21/05/22		D2:215 217	I alk Challs and
	51	51/05/25	Problems on line to line fault	K2:213-217	
	52	04/06/23		T1.276 284	Talk Chalk and
	52	04/00/23	Double Line to ground fault	11.570-504	Talk
	53	05/06/23		R2·217-221	Chalk and
	55	05/00/25	Problems on double line to ground fault	N2.217 221	Talk
	54	06/06/23		T1:385-387	Chalk and
	5.	00/00/20	Open conductor faults	111200 207	Talk
	55	07/06/23		R2:223-239	Chalk and
			Revision, VTU QP discussion		Talk
	56	07/06/23	Module 4 – Class test	R2:242-243	-
	57	12/06/23	Power System Stability: Introduction,	T1:403-409	РРТ
			Dynamics of synchronous Machine		
	58	13/06/23	Power angle equation– Salient pole machine	T1:410-413	PPT
	59	14/06/23	Power angle problems	R2:246-249	PPT
	60	15/06/23	Power Angle equation - Non salient pole	T1:410-413	PPT
			machine		
V	61	15/06/23	Problems on power angle equation	R2:249-252	PPT
v	62	17/06/23	Steady state stability	T1:423-426	PPT
	63	19/06/23	Problems on steady state stability	R2:252-254	PPT
	64	20/06/23	Transient stability	T1:427-430	PPT
	65	21/06/23	Problems of Stability Analysis	R2:254-262	PPT
	66	22/06/23	Swing curve and swing equation	T1:448-454	PPT
	67	26/06/23	Module 5– Class test	R2:277-278	-

68	27/06/23	Question Paper Discussion - Module 1	VTU QP	Chalk and Talk
69	28/06/23	Question Paper Discussion - Module 2	VTU QP	Chalk and Talk
70	01/07/23	Question Paper Discussion - Module 3	VTU QP	Chalk and Talk
71	06/07/23	Question Paper Discussion - Module 4	VTU QP	Chalk and Talk
72	10/07/23	Question Paper Discussion - Module 5	VTU QP	Chalk and Talk

# **COURSE OUTCOMES:**

At the end of the course the student will be able to:

1 – Show understanding of per unit system, its advantages and computation.

2 - Perform short circuit analysis on a synchronous machine and simple power system to select a circuit breaker for the system.

3 – Evaluate symmetrical components of voltages and currents in un-balanced three phase circuits.

4 - Explain the concept of sequence impedance and sequence networks of power system components and power system.

5 - Analyse three phase synchronous machine and simple power systems for different unsymmetrical faults using symmetrical components.

6 - Discuss the dynamics of synchronous machine, stability and types of stability.

### **Assignment Topics**

Sl. No.	Assignment Topics	Submission due on
1	Problems on Per unit calculations and PU reactance diagram	21/04/2023
2	Problems on Symmetrical fault analysis; Sequence networks	26/05/2023
3	Stability definitions, Equal Area Criterion	30/06/2023

# Text Books:

T1: Modern Power System Analysis, D P Kothari, McGraw Hill, 4th Edition, 2011 T2: Power system Analysis, Hadi sadat, MC Graw Hill, 1<sup>st</sup> Edition, 2002

### **Reference Books:**

R1: Power System Analysis by V.Neelakantan, Shiva Book centre, 1<sup>st</sup> edition, 2016 R2: Power System analysis by Nagoorkani, 1st edition, RBA Publication, 2013

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# THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 DEPARTMENT OF ELECTRICAL AND ELECTRONICS

# Lesson Plan

Date: 18-3-23

Subject code	: 18EE63
Subject Title	: DIGITAL SIGNAL PROCESSING
Course / Branch	: B.E/ EEE
Semester	: VI
Academic Year	: 2022-23
Faculty Name	: M.RAICHEL RUBY
Objective of Course	:To study about the basis of signal processing and enable to work a
	relatively wide range of problems in Discrete systems.

# **Course Objectives:**

- To evaluate DFT of various signals using properties of DFT.
- To explain different linear filtering techniques.
- To explain the evaluation of DFT and inverse DFT using fast and efficient algorithms
- To discuss impulse invariant transformation, bilinear transformation techniques and their properties.

• To design infinite impulse response Butterworth digital filters using impulse invariant and bilinear transformation techniques.

- To design infinite impulse response Chebyshev digital filters using impulse invariant and bilinear transformation techniques.
- To discuss direct, cascade, parallel and ladder methods of realizing a digital IIR filter.
- To discuss window functions used for the design of FIR filters.
- To discuss windowing technique of designing FIR filter.
- To discuss frequency sampling technique of designing FIR filter.
- To discuss direct, cascade and linear phase form of realizing a digital FIR filter.

	Tonic			Books	Pedagogy
Unit	No	Date	Planned Topic	Referred	
	INO.			& Pages	
	1.		Introduction to DSP ,Block Diagram of	T1-1,2	Chalk &
		20.3.23	DSP, Advantages, Limitations &		Так
			Applications		
	2.	21 3 23	Introduction to DFT & IDFT	T1-3-7	Chalk &
		21.3.23			Talk
	3.	<u></u>	Computing DFT by expansion &	T1-8	Chalk &
т		23.3.23	problems		Talk
1	4.	24.3.23	Problems	T1-10	Chalk &
					Talk
	5.	25.3.23	Computing DFT by matrix relation &	T1-12	Chalk &
			problems		Talk
	(	07.0.00		TT1 15	Challe 6
	0.	21.3.23	Problems	11-15	Talk
	7	28 3 23	Computing IDET by matrix relation 8	T1 16	Chalk &
	7.	20.3.23	computing iDFT by matrix relation &	11-10	Talk

			problems		
	8.	03.4.23	Problems	T1-20	Chalk & Talk
	9.	04.4.23	Properties of DFT:linearity, shifting	T1-30	Chalk &
			property & Problems		Так
	10.	05.4.23	Properties-symmerty & Problems	T1-31	Chalk & Talk
	11.	06.4.23	Circular convolution -proof	T1-35	Chalk & Talk
	12.	07.4.23	Problems	T1-36	Chalk & Talk
	13.	10.4.23	Circular arrays-problems	T1-38	Chalk & Talk
	14.	14 4 23	Stockhams method, Matrix method and	T1-39	Chalk &
		14.4.23	problems		I dik
	15.	17.4.23	Comparison of linear convolution with	T1-41	Chalk & Talk
			circular convolution and problems		Tulk
	16.	18.4.23	Introduction to Signal segmentation	T1-43	Chalk & Talk
			using overlap add method		Tulk
	17.	02.5.23	Problems using overlap add method	T1-44	Chalk & Talk
	18.	02.5.23	Signal segmentation using overlap save	T1-45	Chalk &
			method and problems		Так
п	19.	04.5.23	Introduction to FFT algorithms and	T1-48	Chalk &
- 11			properties		Так
	20.	04.5.23	DITFFT algorithms-first and second stage	T1-50	Chalk &
			decimation		1 dik
	21.	06.5.23	Problems on DIT FFT algorithms	T1-52	Chalk & Talk
	22.	09.5.23	Problems on DIT FFT algorithms	T1-55	Chalk & Talk
		11/5/23	I –INTERNAL TEST	-	-
		13/5/23			
	23.	16.5.23	Problems on DIF FFT algorithms	T1-56	Chalk & Talk
	24.	17.5.23	Problems on DIFFFT algorithms	T1-57	Chalk & Talk
	25.	18.5.23	Introduction to Inverse FFT & problems	T1-83	Chalk &
			on IDIF FFT algorithms		I alk
	26.	18.5.23	Problems on IDIT FFT algorithms	T1-84	Chalk & Talk
II	27	20.5.23	Design of IIR filters- introduction	T1-90	Chalk & Talk
	28.	23.5.23	Introduction to butterworth and	T1-92	Chalk &
			chebyshev filter		так
	29.	24.5.23	Design of butterworth filter (analog)	T1-93	Chalk & Talk
	30	25.5.23	Design of chebyshev filter(analog)	T1-95	Chalk & Talk
	31.	25.5.23	Frequency transformation in analog	T1-97	Chalk &
					так

			domain		
	32.	27.5.23	Frequency transformation in digital	T1-99	Chalk &
			domain using impulse invariant		Talk
			transformation and problems		
	33.	30.5.23	Frequency transformation in digital	T1-100	Chalk &
			domain using Bilinear transformation		Talk
			and problems		
	34.	31.5.23	Design of IIR butterworth filter using	T1-104	Chalk &
			impulse invariant transformation &		Talk
			problems		
	35.	01.6.23	Design of IIR butterworth filter using	T1-106	Chalk &
			Bilinear transformation & problems		Talk
	36.	03.6.23	Design of chebyshev filter type-I(analog)	T1-108	Chalk &
			and problems		Talk
111	37.	06.6.23	Design of IIR chebyshev filter using	T1-109	Chalk &
			impulse invariant transformation &		Talk
			problems		
	38.	07.6.23	problems	T1-110	Chalk &
		08.6.23-	II –INTERNAL TEST	-	
		10.6.23			
	39.	13.6.23	problems	T1-115	Chalk & Talk
	40.	14.6.23	Design of IIR chebyshev filter using	T1-117	Chalk &
			Bilinear transformation & problems		Talk
	41.	15.6.23	problems	T1-120	PPT
	42.	15.6.23	Realization of IIR system-direct form	T1-125	Chalk & Talk
	43.	17.6.23	Realization of IIR system- cascaded form	T1-126	Chalk & Talk
	44.	18.6.23	Realization of IIR system- parallel form	T1-127	Chalk &
	45.	20.6.23	Realization of IIR system- ladder	T1-127	Chalk &
			structure		Talk
VI	46.	21.6.23	Design of FIR digital filters-introduction	T1-132	PPT
	47.	22.6.23	Properties of FIR digital filters	T1-135	PPT
	48.	24.6.23	Windowing rectangular, modified	T1-136	Chalk &
			rectangular		Talk
	49.	27.6.23	problems	T1-137	Chalk & Talk
	50.	28.6.23	Blackman ,hamming	T1-139	Chalk & Talk
	51.	29.6.23	problems	T1-140	Chalk &
	52.	29.6.23	Realization of FIR system –direct form	T1-141	Chalk &
	53	30.6.23	problems	T1-142	Talk Chalk &
L					

					Talk
	54.	24.6.23	problems	T1-143	Chalk &
			•		Talk
	55.	01.7.23	Realization of FIR system –cascade form	T1-146	Chalk &
			-		Talk
	56.	02.7.23	problems	T1-147	Chalk &
					Talk
	57.	04.7.23	problems	T1-149	Chalk &
			-		Talk
	58.	05.7.23	Realization of FIR system –linear phase	T1-150	PPT
<b>N</b> 7			form		
V	59.	06.7.23	problems	T1-152	Chalk &
					Talk
	60.	06.7.23	problems	T1-155	Chalk &
			-		Talk
	61.	08.7.23	problems	T1-156	Chalk &
					Talk
		11.7.23-	III –INTERNAL TEST	-	-
		13.7.23			
	62.	14.7.23	Revision		Chalk &
					Talk
	63.	15.7.23	Revision		Chalk &
					Talk

# **Course Outcome:**

After the completion of the course, the students should be able

- Compute the DFT of various signals using its properties and linear filtering of two sequences
- Apply fast and efficient algorithms for computing DFT and inverse DFT of a given sequence
- Design IIR Butterworth digital filters using impulse invariant /bilinear transformation technique
- Design IIR Chebyshev digital filters using impulse invariant /bilinear transformation technique
- Realize digital IIR filter by direct ,cascade, parallel and ladder methods of realization
- Design of FIR filters by use of window function and Realization digital FIR filter by direct, cascade and linear phase form.

# **Assignment Topics:**

Sl. No.	Assignment Topics	References
1.	DFT and IDFT problems	R1
2.	Analog Filters-B.W, Chebyshev filters	T1
3.	Fir Filters	T1

# **Text Books:**

T1: Digital Signal Processing principle, Algorithm & application proakis,- pearson education/PHI

T2: Digital Signal Processing-Sanjeet K.Mitra-TMH

**Reference Books:** 

R1 : Discrete time signal processing-GANESH RAO -pearson education

- R2: Digital Signal Processing –Dr J.S .Chitode
- R3: Digital Signal Processing- P.Ramesh Babu

Refat

(M.Raichel Ruby) Faculty

(Dr.Bharath V S) HOD / EEE

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical & Electronics Engineering Lesson Plan

Date: 20/32023

Subject code	: 18EE644
Subject Title	: Embedded Systems (Professional Elective)
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: VI
Academic Year	: 2022-23(even)
Faculty Name	: Mrs Nisha C Rani

### **COURSE OBJECTIVE:**

- To understand the concepts of Embedded system design such as ROM variants, RAM, SOC
- To learn the technological aspects of Embedded system such as signal conditioning, Sample & Hold.
- To understand the design trade-offs
- To study about the software aspects of Embedded system To explain about various interrupt routines

### **COURSE OUTCOME:**

- C3644.1- To understand the concepts of Embedded system design concepts, components, ROM variants, RAM, SOC
- C3644.2 To Understand about the various modules of microcontroller core architecture
- C3644.3-To apply Technological aspects to various interfacing with devices such as ADC,DAC
- C3644.4- To Elaborate various design trade-offs.
- C3644.5-To apply software aspects and programming concepts to the design of Embedded System.
- C3644.6 To explain how to interface subsystem with external system.

### **PREREQUISITE**(s):

Basics of Microcontroller architecture, computer architecture, basics of C

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Unit	Topic No.	Date	Торіс	Period	Text Referred & Page No	Pedagogy
	1	20/3/23	Module 1 Embedded System: Introduction	4	T3 1-37	Chalk & Board
	2	21/3/23	Concept of Embedded System Design	3	T31.1.1-1.1.4	Chalk & Board
Ι	3	22/3/23	Components	1	T31.1.1-1.1.4	Chalk & Board
	4	24/3/23	classification, skills required.	2	T31.1.1-1.1.4	Chalk & Board
	5	25/3/22	Embedded Micro controller cores: Architecture of 6808	4	T1,R2 T1: 13,R3	Chalk & Board
	6	27/3/23	Architectural features of 6808	3	T1 1.3.1- 1.3,R3	Chalk & Board

	7	28/3/23	Embedded Micro controller cores: Architecture of 6811	1	T11.4 1.4.1- 1.4	Chalk & Board
	8	29/3/23	Architectural features of 6811	2	T11.4 1.4.1- 1.4,R3	Chalk & Board
	9	31/3/23	Modes of operation of 6811 MCU	4	T11.4 1.4.1- 1.4,R3	Chalk & Board
	10	4/4/23	Embedded Memories	4	T3 :37- 39	Chalk & Board
	11	5/4/23	RAM ,ROM Variants	3	T3 :37- 39	Chalk & Board
	12	8/4/23	Revision	1	T1T3,R3	Chalk & Board
	13	10/4/23	Vtu question paper discussion	2	-	Chalk & Board
	14	11/4/23	Class Test	4	T1,T3,R3	Chalk & Board
	15	13/4/23	Vtu question paper discussion	3	-	Chalk & Board
	16	17/4/23	Module 2 Technological Aspects of Embedded System: General design issues of Embedded System	1	1.5.1,1.6.1	Chalk & Board
	17	18/4/23	Applications of embedded system	2	R2 3.1.1	PPT
	18	19/4/23	Examples of Embedded system	3	R2 3.1.1	PPT
	19	21/4/23	SoC systems SOC for bar code scanner.	4	R2 3.1.1	Chalk & Board
	20	28/4/23	Interfacing between analog and digital blocks,	3	T1 167-210	Chalk & Board
	21	2/5/23	Signal conditioning, digital signal processing,	1	T1 167-210	Chalk & Board
Π	22	3/5/23	DAC interfacing,	2	T1 167-210	Chalk & Board
	23	5/5/23	ADC Interfacing	4	T1 167-210	Chalk & Board
	24	6/5/23	Sample & hold	3	T1 167-210	Chalk & Board
	25	8/5/23	multiplexer interface	1	T1 167-210	Chalk & Board
	26	9/5/23	Internal ADC interfacing	2	T1 167-210	Chalk & Board
	27	10/5/23	Internal ADC interfacing	4	T1 167-210	Chalk & Board
	28	12/5/23	Internal ADC interfacing	3	T1 167-210	Chalk & Board
	29	15/5/23	Assignment 1 Discussion	1	T1	Chalk & Board
	30	16/5/23	Revision	2	T1	Chalk & Board
	31	17/5/23	Vtu question paper discussion	4	-	
	32	19/5/23	Revision	3	T1	Chalk & Board
III	33	20/5/23	Module 3 Design Trade Offs Due to Process Incompatibility, Thermal Considerations	1	T3:542-548 (5:12.7) R1 Ch-1	Chalk & Board
	34	22/5/23	Data Acquisition System technology,	2	T3:542-548 (5:12.7) R1 Ch-1	Chalk & Board

			Deta Acquisition System technology		T3.542 548	Chalk & Board
	35	23/5/23	Data Acquisition System technology	4	(5.12.7)	Chaik & Doard
	55	2515125	and	4	$R1 Ch_{-1}$	
		24/5/22	Signal conditioning using DSP		T3·542-548	Chalk & Board
	36	24/3/23	Signal conditioning using DSI	3	(5.127)	Chark & Doard
	50			5	R1 Ch-1	
			Issues in embedded system design		T3·542-548	Chalk & Board
			issues in embedded system design		(5.12.7)	Chark & Doard
	37	26/5/23		1	R1 Ch-	
					1 Internet	
		20/5/23	Design challenge design		R1 Ch-1	Chalk & Board
	20	2913123	Design enanenge, design	2		chuik & Dourd
	38			Z		
	30	30/5/23	trade-offs. Thermal considerations	4	T3:542-548	Chalk & Board
	57	5015125		•	Internet	
	40	21/5/22	Revision	2	R1	Chalk & Board
	40	51/5/25		5		
	41	4/6/23	Assignment 2 Discussion	1	_	Chalk & Board
		5/6/23	Module 4 Software aspects of	-	T3 167-210	Chalk & Board
	42	510125	Embaddad Systems:	2	15 107 210	Churk & Dourd
	42		Embedded Systems.	2		
						CI 11 0 D 1
	43	6/6/23	Real time programming Languages,	4	T3 Ch5	Chalk & Board
	Ъ	0/0/25		т	15 015	
		7/6/23	operating systems.Programming			Chalk & Board
	44		concepts	3	T3 Ch5	
			•	_		
			embedded programming in C			Chalk & Board
IV	45	8/6/23	emocaaca programming in c	1	T3 Ch5	
			Round Robin Architecture		P3 Chapter 5	РРТ
	46	12/6/23	Round Room Anemacture,	2		
			Down d Dahin with interments		D2 Chanton 5	TUT
	47	13/6/23	Kound Koom with interrupts,	4		I I I
						DDT
	48	14/6/23	Function	3	R3 Chapter 5	PPI
			queue-scheduling architecture	_	& 0	
	49	16/6/23	Vtu question paper discussion	1	-	Chalk & Board
	50	19/6/23	Revision	2	T3 Ch5	Chalk & Board
		20/6/23	Module 5 Subsystem interfacing:			Chalk & Board
	51			4	12	
		21/6/23	With external systems user interfacing		Т2	Chalk & Board
	52	21/0/23	White external systems user internating	3	12	chuik & Dourd
		0016100	Carial I/O designed		T171	Challe & Doord
		23/0/23	Serial I/O devices		7.2	Cliaik & Doald
					7.2 T1 Ch 0	
	53			1	11 Cll.9 404 514	
					Ch 10	
V					530-555	
	54	26/6/23	Parallel port interfaces:	2	T1 7.1	Chalk & Board
	Эт	2010123	Porollal port interfaces:	-	7.2	Chalk & Board
	55	2114/23	Parallel port interfaces:	4	T1 Ch.9	Cliaik & Doald
		07/6/00	input switches interfacing		494-514	$Challe \theta D = 11$
	56	27/6/23	Key boards interfacing	2	Ch 10 530-555	Chaik & Board
	50		Key boards interfacing	5		
	57	28/6/23	Memory interfacing	1	T1 7.1	Chalk & Board
	50	30/6/22	Memory interfacing Examples	2	7.2	Chalk & Roard
	50	3010123	within y mutating Examples		1	chun a board

	1/7/23	Memory interfacing Examples		T1 Ch.9	Chalk & Board
59			4	494-514	
57			-	Ch 10	
				530-555	
60	6/7/23	Assignment 3 Discussion	3	T1	Chalk & Board
61	7/7/23	VTU Question Paper Discussion	1	-	Chalk & Board
62	10/7/23	VTU Question Paper Discussion	2	-	Chalk & Board

Assignment Topics:

Sl.No	Торіс	References
1	Module 1	T3
2	Module 3	T1
3	Module 5	T1

- 1<sup>ST</sup> INTERNAL 24/4/2023 25/4/2023 2<sup>ND</sup> INTERNAL 1/6/2023 3/6/2023

3 <sup>RD</sup>	INTERNAL	- 3/7/2023-	5/7/2023

Deel T	Cada		<b>Publication Information</b>		
воок туре	Code	Title & Author	Edition	Publisher	Year
		Embedded Microcomputer	2nd	Valvano	2008
		systems: Real time	Edition	J.W	
	T1	interfacing		Cengage	
				Learning	
		The Art of Designing	Newnes	The Art of	2008
Text Books		Embedded systems Jack	2nd	Designing	
I CAU DOORS	Т2	Ganssle Newnes 2nd Edition	Edition	Embedded	
	12			systems Jack	
				Ganssle	
		Embedded System,	TMH,	Raj Kamal	2008
	тз	Architecture, Programming	2nd		
		and Design	Edition		
		A Unified	Wiley	Tony	2002
	R1	Hardware/Software	student	Givargis	
<b>D</b> 4		Introduction Frank Vahid,	edition		
Reference Books		Embeded Software Premier	Wessly	Simon David	2000
	R2		2000	Addison	
		Motorola and Intel Manuals		Datasheet	
	R3				



Pargolas Mr.

Facility.

HOD-EXE

#### THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical and Electronics Engineering

#### Lesson Plan

Date: 10/02/23

Subject code	: 18EEL66
Subject Title	: Control Systems LAB
Course / Branch	: B.E/EEE
Semester	: <b>VI</b>
Academic Year	: 2022-2023(EVEN Sem)
Faculty Name	: Mrs.Mounika Sharon
<b>Objective of Course</b>	:

To determine the time and frequency domain reposes of a given second order system using software package or discrete components.

To design and analyze Lead, Lag and Lag – Lead compensators for given specifications.

To draw the performance characteristics of ac and dc servomotors and synchro-transmitter receiver pair.

To simulate the DC position and feedback control system to study the effect of P, PI, PD and PID controller and Lead compensator on the step response of the system.

To write a script files to plot root locus, bode plot, Nyquist plots to study the stability of the system using a software package • **PREREOUISITE** : Knowledge in MATLAB

Experiment No.	Date	Торіс	PEDAGOGY
1	15/2/23 16/2/23	Experiment to draw the speed torque characteristics of (i) AC servo motor (ii) DC servo motor	Chalk and Talk / Hardware
2	22/2/23 23/2/23	Experiment to draw synchro pair characteristics	Chalk and Talk / Hardware
3	01/3/23 02/3/23	Experiment to determine frequency response of a second order system	Chalk and Talk / Simulation
4	08/3/23 09/3/23	<ul><li>(a) To design a passive RC lead compensating network for the given specifications, viz, the maximum phase lead and the frequency at which it occurs and to obtain the frequencyresponse.</li><li>(b) To determine experimentally the transfer function of the lead compensatingnetwork</li></ul>	Chalk and Talk / Simulation
5	22/3/23 30/3/23	<ul> <li>(a)To design a passive RC lag compensating network for the given specifications, viz, the maximum phase lag and the frequency at which it occurs and to obtain the frequencyresponse.</li> <li>(b) To determine experimentally the transfer function of the lag compensatingnetwork</li> </ul>	Chalk and Talk / Simulation
6	05/4/23 20/4/23	Experiment to draw the frequency response characteristics of the lag – lead compensator network and determination of its transfer function	Chalk and Talk / Simulation
7	19/4/23 27/4/23	(a) To simulate a typical second order system and determine step response and evaluate time response specifications. (b) To evaluate the effect of additional poles and zeros on time response of second order system. (c) To evaluate the effect of pole location on stability (d) To evaluate the effect of loop gain of a negative feedback system on stability.	Chalk and Talk / Simulation
8	26/4/23 27/4/23	To simulate a second order system and study the effect of (a) P, (b) PI, (c) PD and (d) PID controller on the step response	Chalk and Talk / Hardware
9	03/5/23 05/5/23	<ul><li>(a) To simulate a D.C. Position control system and obtain its step response.</li><li>(b) To verify the effect of input waveform, loop gain and system type on steady state errors.</li><li>(c) To perform trade-off study for lead compensator.</li><li>(d) To design PI controller and study its effect on steady state error.</li></ul>	Chalk and Talk / Hardware
10	03/5/23 05/5/23	(a) To examine the relationship between open-loop frequency response and stability, open-loop frequency and closed loop transient response (b) To study the effect of open loop gain on transient response of closed loop system using root locus.	Chalk and Talk / Simulation
11	11/5/23 12/5/23	((a) To study the effect of open loop poles and zeros on root locus contour (b) To estimate the effect of open loop gain on the transient response of closed loop system using root locus. (c) Comparative study of Bode, Nyquist and root locus with respect to stability	Chalk and Talk / Simulation

**Course outcomes**: At the end of the course the student will be able to:

1.Use software package or discrete components in assessing the time and frequency domain reposes of a given second order system.

2.Design and analyze Lead, Lag and Lag – Lead compensators for given specifications.

3.Determine the performance characteristics of ac and dc servomotors and synchro transmitter receiver pair used in control systems.

4. Simulate the DC position and feedback control system to study the effect of P, PI, PD and PID controller and Lead compensator on the step response of the system.

5.Write a script files to plot root locus, bode plot, Nyquist plots to study the stability of the system using a software package.

6.Work with a small team to carryout experiments and prepare reports that present lab work



(Dr.Bharath V S) HOD / EEE

#### THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical and Electronics Engineering

#### Lesson Plan

Subject code	: 18EEL67
Subject Title	: DIGITAL SIGNAL PROCESSING LAB
Course / Branch	: B.E/EEE
Semester	: VI
Academic Year	: 2022-2023(EVEN Sem)
Faculty Name	: Mrs. M.Raichel Ruby
<b>Objective of Course</b>	
-	• To explain the use of MATLAP software in evaluating the DET and IDET of given

• To explain the use of MATLAB software in evaluating the DFT and IDFT of given sequence

Date: 10/02/23

- To verify the convolution property of the DFT
- To design and implementation of IIR and FIR filters for given frequency
- specifications.
- To realize IIR and FIR filters.
- To help the students in developing software skills.

#### • PREREQUISITE : Knowledge in MATLAB

Experim ent No.	Date	Торіс	Pedagogy
1	15/2/23 16/2/23	Introduction-Sine, Cosine,Exponential signal generation for continuous and discrete.	Chalk and Talk
2	$\begin{array}{c} \textbf{22/2/23} \\ \textbf{23/2/23} \end{array}  \text{Computation of N - point DFT and to plot the magnitude and phase spectrum.} \end{array}$		Chalk and Talk
3	01/3/23 02/3/23Evaluation of impulse response of a system.		Chalk and Talk
4	08/3/23 09/3/23To perform linear convolution of given sequences		Chalk and Talk
5	22/3/23 30/3/23To perform circular convolution of given sequences using (a) the convolution summation formula (b) the matrix method and (c) Linear convolution from circular convolution with zero padding.		Chalk and Talk
6	05/4/23 20/4/23Verification of Sampling Theorem both in time and frequency domains		Chalk and Talk
7	19/4/23 27/4/23Linear and circular convolution by DFT and IDFT method.		Chalk and Talk
8	26/4/23 27/4/23Solution of a given difference equation.		Chalk and Talk
9	03/5/23 05/5/23	Calculation of DFT and IDFT by FFT	Chalk and Talk
10	03/5/23Design and implementation of IIR filters to meet given specification (Low pass, high pass, band pass and band reject filters).		Chalk and Talk
11	11/5/23 12/5/23	Design and implementation of FIR filters to meet given specification (Low pass, high pass, band pass and band reject filters) using different window functions.	Chalk and Talk

### **Course Outcome:**

At the end of the course the student will be able to:

- Give physical interpretation of sampling theorem in time and frequency domains.
- Evaluate the impulse response of a system.
- Perform convolution of given sequences to evaluate the response of a system.
- Compute DFT and IDFT of a given sequence using the basic definition and/or fast methods.
- Provide a solution for a given difference equation.
- Design and implement IIR and FIR filters
- Conduct experiments using software and prepare reports that present lab work

#### **Reference Books:**

1.Digital Signal Processing – Principles, Algorithms, and Applications Jhon G. Proakis Dimitris G. Manolakis Pearson 4 th Edition, 2007.

2. Digital Signal Processing A.NagoorKani McGraw Hill 2 nd Edition, 2012

3. Digital Signal Processing Shaila D. Apte Wiley 2 nd Edition, 2009

4. Digital Signal Processing Ashok Amberdar Cengage 1 stEdition, 2007

5. Digital Signal Processing Tarun Kumar Rawat Oxford 1 st Edition, 20

Students Feedback about the course from Last Year:

1. Digital Signal Processing subject theory should be studied

(M.Raichel Ruby) Faculty

# (Dr.Bharath V S) HOD / EEE

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan - 2022 – 2023 (EVEN)

Date:09 /02/2023

: 18EE81
: Power System Operation & Control
: BE (Electrical & Electronics Engineering)
: VIII
: Feb 2023 – May 2023
: Dr.B.Devi Vighneshwari

# **COURSE OBJECTIVE:**

- To describe various levels of controls in power systems and the vulnerability.
- To explain components, architecture & configuration of SCADA
- To explain the generator control loops, functions of ALFC, speed governors and mathematical models
- To explain automatic generation control, voltage and reactive power control in an interconnected power system

To explain reliability and contingency analysis, state estimation & related issues. <u>COURSE</u> <u>OUTCOME:</u>

At the end of the course the student will be able to:

C411.1 -Develop & Analyze Mathematical Modeling of Single Area Load frequency Control C411.2 - Develop & Analyze Mathematical Modeling of Automatic Generation Control, SCADA Configurations

C411.3 -Develop & Analyze Mathematical Modeling of Interconnected Automatic Generation Control, SCADA Details

C411.4 -Discuss on the Control of Voltage, Reactive power & Voltage Collapse

C411.5 -Discuss the various levels of Controls in power systems

C411.6 -Explain power system security, contingency and state estimation of power systems **PREREQUISITE(s)**:

Knowledge on Power System, Power Generation & Economic Dispatch.

Unit	Topic No.	Date	Торіс	Text Referred & Page No	Pedagogy
П	1	17/02/23	<u>Automatic Generation Control (AGC):</u> Introduction, Explanation of ALFC & AVR Loops	T1-290 - 327	PPT & Chalk & Board
	2	17/02/23	Load Frequency Control - Explanation	T1-290 - 327	PPT & Chalk & Board
	3	17/02/23	Speed Governing System - Modelling	T1-290 - 327	PPT & Chalk & Board
	4	17/02/23	Turbine, Generator & Load Model	T1-290 - 327	PPT & Chalk & Board
	5	24/02/23	Completed Block Diagram Representation of Isolated Single Area ALFC Loop	T1-290 - 327	PPT & Chalk & Board

		24/02/23	Standy State Analysis of Single Area	T1-290 -	PPT &
	6	21102128	Steady State Analysis of Single Area	327	Chalk &
	Ū		ALFC Loop		Board
		25/02/22	Dynamia Stata Analysis of Single Ana	T1 200	DOULD DDT &
	7	23102123	Dynamic State Analysis of Single Area	327	Chalk &
	/		ALFC Loop	321	Deerd
		25/02/22		<b>T</b> 1 200	DOard
	0	25/02/23	Proportional & Integral Controller with	11-290 -	PPT&
	8		Single Area ALFC	327	Chalk &
					Board
		03/03/23		T1-290 -	PPT &
	9		Problems in Single Area ALFC Designs	327	Chalk &
					Board
		03/03/23		T1-290 -	PPT &
	10	03/03/23	Problems in Single Area ALEC Designs	327	Chalk &
	10		rioblems in Single rieu riel e Designs	327	Board
		02/02/22		T1 510	DOULD DDT &
	11	03/03/23	Introduction: Operating States of Power	512	Challe &
	11		System & Objectives of Control	312	Chark $\alpha$
					Board
		10/03/23	Key Concepts of Reliable Operation,	11-510-	PPT&
	12		Preventative & Emergency Controls.	512	Chalk &
			Energy Management Centres		Board
		10/02/22		D1 21 40	
T		10/03/23	Supervisory Control and Data	R1-21-40	PP1 &
I	10		Acquisition:(SCADA)		Chalk &
	13		Introduction Components Applications of		Board
			D C c		
			Power System		
	14	11/03/23		R1-21-40	PPT &
			SCADA - Basic Functions & advantages		Chalk &
					Board
		11/03/23		R1-21-40	PPT &
	15		Building Blocks of SCADA System		Chalk &
					Board
		17/03/23	Commence of PTU Commence is stire forth	R1-21-40	PPT &
	16	11100120	Components of RTU, Communication Sub		Chalk &
	10		Systems		Board
	17	17/03/23		R1-21-40	PPT &
		17/03/23	IED Functional Block Diagram & Its	111 21 10	Chalk &
			Applications		Board
		17/02/22	Classification of SCADA Catalog		DDT &
		1//05/25	Classification of SCADA Systems:		$\Gamma \Gamma \Gamma \alpha$
	18		Types of SCADA - With Block Diagram	R1- 62 - 74	Chark $\alpha$
			& Explanation		Board
		24/03/22		R1-62-74	PPT &
	10	27/05/25	Revision of Module 1 & VTU Question		Chalk &
	19		Paper Discussion		Board
		24/02/22		D1 62 74	
	20	24/03/23	Revision of Module 2& VTU Question	KI-02-74	$PPI \alpha$
	20		Paper Discussion		Chalk &
				<b>T</b> 1 <b>C</b> 01	Board
		25/03/23	Control of Voltage and Reactive Power	11-591-	PPT &
	0.1		:	601	Chalk &
	21		Introduction Generation & Absorption of		Board
			Departing Dower		
			Keacuve Power		
		25/03/23	Relationship Between Voltage, Power and	Т1- 591 -	PPT &
	22		Reactive Power at a node	601	Chalk &
IV					Board
<b>•</b> •		31/03/23		T1- 591 -	PPT &
	23		Methods of Voltage Control	601	Chalk &
1			č		Board

		31/03/23		T1- 591 -	PPT &
	24	51705725	Methods of Voltage Control	601	Chalk &
	27		Wethous of Voltage Control	001	Board
	-	21/02/22		T1 501	
	25	31/03/23	Matheada of Waltana Cantural	11- 391 -	$PPI \alpha$
	23		Methods of Voltage Control	601	Chaik &
					Board
		08/04/23		T1- 591 -	PPT &
	26		Problems in Voltage Control	601	Chalk &
					Board
		08/04/23		T1- 591 -	PPT &
	27		Problems in Voltage Control	601	Chalk &
					Board
		08/04/22		T1_ 591 _	PPT &
	28	00/04/23	Voltage Collapse	601	Challe &
	20		voltage Collapse	001	Cliaik &
		21/04/22			
	20	21/04/23			PP1 &
	29		Class Test on Module 4	-	Chalk &
					Board
		21/04/23	Revision of Module 4& VTU Question		PPT &
	30		Description of Module fee vite Question	-	Chalk &
			Paper Discussion		Board
		21/04/23	Automatic Generation Control (AGC)	T1-290 -	PPT &
	21		& Interconnected Device System .	327	Chalk &
	31		& Interconnecteu Power System :		Board
П			Introduction & Area Control Concept		Dourd
	32	28/04/23	Two area fragmeness control by State	T1-290 -	PPT &
			Two area frequency control by State	327	Chalk &
			Variable method		Board
		28/04/23	<b>T</b> ( 11 ( 1)	T1-290 -	PPT &
	33	20/04/23	Two area frequency control by State	327	Chalk $\&$
	55		Variable method	521	Chark &
	34	20/04/22	Load Frequency Control With Generation	T1 200	
		28/04/23		11-290 -	$PPI \alpha$
			rate Constraints	327	Chaik &
					Board
		05/05/23	Speed Governor dead band and its effect	T1-290 -	PPT &
	35		on ACC	327	Chalk &
			OII AOC		Board
		05/05/23		T1-290 -	PPT &
	36		Digital LF Controllers	327	Chalk &
			6		Board
		05/05/23		T1-290 -	PPT &
	37	05/05/25	Decentralized Control	327	Chalk &
	57			527	Board
		06/05/22		T1 200	DDT &
	20	00/03/25	Problems under Two area Frequency	11-290 -	Challe &
	50		control	327	Cliaik &
		06105122		TT1 510	
	20	06/05/23	Power System Security:	11-510 -	PPI &
	39		Introduction & Factors Affecting Security	524	Chalk &
			introduction & Factors / incening Security		Board
		06/05/23		T1-510 -	PPT &
	40		Power System Security	524	Chalk &
			-		Board
		12/05/23	Contingancy Analysis Introduction P	T1-510 -	PPT &
	41		Contingency Analysis - Introduction &	524	Chalk &
<b>.</b>			Flowchart		Board
V		12/05/22		T1-510 -	PPT &
	12	12/03/23	Linear Sensitivity Factors	524	Challe &
	42		Linear Scholivity Factors	527	Roard
		10/05/02		T1 510	
	43	12/05/23	Ac Power Flow Methods	11-510 -	PPI &
1				524	Chalk &

				Board
	13/05/23		T1-510 -	PPT &
44		Contingency Selection and Ranking	524	Chalk &
				Board
	13/05/23	State Estimation of Power Systems .	T1-531 -	PPT &
45		Intro destion	540	Chalk &
		Introduction		Board
	13/05/23		T1-531 -	PPT &
46		Linear Least Square Estimation	540	Chalk &
		<b>1</b>		Board

Assignment Topics:

Sl.No	Торіс	References
1	Open Book Test / Class Test / Assignment (Module 1 & 2)	R2 & T1
2	Open Book Test / Class Test / Assignment (Module 3 & 4)	T1 & R2
3	Open Book Test / Class Test / Assignment	T1 & R2

Book	Cada		Publi	cation Informatio	n
Туре	Code	Title & Author	Edition	Publisher	Year
Text	T1	Modern Power System Analysis by D.P.Kothari	4th Edition	Tata Mcgraw hill	2011
DOOKS	T2	Power Generation, Operation & Control by Allen J Wood etal	2 <sup>nd</sup> Edition	Wiley	2003
Referen ce	R1	Power System SCADA & smart Grid by Mini S Thom & John D Mc Donald	2 <sup>nd</sup> Edition	CRC Press	2015
Books	R2	Power System analysis stability and control by Kundur	8 <sup>th</sup> Reprint	MC Graw Hill	2009

(Dr.B.Devi Vighneshwari) Faculty Section Viewer 102 Net Section Viewer 102 Section Viewer 102 Automatical Section 102 Automatical Section 102

(Dr.Bharath V S) HOD / EEE



# THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 DEPARTMENT OF ELECTRICAL AND ELECTRONICS

# Lesson Plan

Date: 24-05-23

Subject code	: BESCK104B/BESCK204B
Subject Title	: Introduction to Electrical Engineering
Course / Branch	: B.E/ AIML, SECTION –C6
Semester	: II
Academic Year	: 2022-2023
Faculty Name	: Mrs. Resna S R
Objective of Course	
• To overlain the	have used in the analysis of DC and $\Lambda C$

- To explain the laws used in the analysis of DC and AC circuits.
- To explain the behavior of circuit elements in single-phase circuits.
- To explain the construction and operation of transformers, DC generators and motors and induction motors.
- To introduce concepts of circuit protecting devices and earthing.
- To explain electric power generation, transmission and distribution, electricity billing, equipment and personal safety measures.

Mod	Topi			Books	Pedagogy
wibu	с	Date	Planned Topic	Referred &	
ule	No.			Pages	
	1.	25/5/2023	Introduction to syllabus	T1-16	РРТ
	2.	26/5/2023	Module1 Introduction: Conventional	T1-20	PPT
			and non-conventional energy resources;		
			General structure of electrical power		
			systems using single line diagram		
			approach.		
	3.	29/5/2023	Power Generation: Hydel, Nuclear	T1-21	PPT
Ι			power generation (Block Diagram		
			approach).		
	4.	30/5/2023	Solar & wind power generation (Block	T1-25	PPT
			Diagram approach).		
	5.	1/6/2023	<b>D.C.Circuits:</b> Electric circuit, active	T1-30	Chalk &Board
			and passive elements, dependent source		
			and indepent source		
	6.	2/6/2023	Ohm's Law and limitations	T1-32	Chalk &Board
	7.	3/6/2023	Analysis of Series, Parallel, & Series-	T1-35	Chalk &Board
			Parallel circuits excited by independent		
			voltage source		
	8.	5/6/2023	problems	T1-36	Chalk &Board
	9.	6/6/2023	problems	T1-40	Chalk &Board
	10.	8/6/2023	Kirchhoff's voltage and current	T1-42	Chalk &Board
			Law(KCL&KVL), power, energy		

П	11.	9/6/2023	problems	T1-43	Chalk &Board
	12.	12/6/2023	Problems	T1-44	Chalk &Board
	13.	13/6/2023	Problems	T1-50	Chalk &Board
	14.	15/6/2023	Module2 A.C. Fundamentals:	T1-55	Chalk &Board
			,Definition of time period, frequency, amplitude, phase, phase difference.		
	16.	16/6/2023	Average value, RMS value, form factor, peak factor	T1-78	Chalk &Board
	17.	19/6/2023	Analysis of Resistive and inductive circuit with Phasor diagram	T1-84	Chalk &Board
	18.	20/6/2023	Problems on resistive and inductive load	T1-84	Chalk &Board
	19.	22/6/2023	Problems on resistive and inductive load	T1-85	Chalk &Board
	20.	23/6/2023	Analysis of Capacitive circuit with Phasor diagram+problems	T1-86	Chalk &Board
	21	30/6/2023	Analysis of RL circuits with Phasor diagrams	T1-87	Chalk &Board
	22.	1/7/2023	Analysis of RC circuits with Phasor diagrams	T1-89	Chalk &Board
	23.	3/7/2023	Analysis of RLC circuits with Phasor diagrams	T1-92	Chalk &Board
	24.	4/7/2023	Real power, Reactive power, Apparent Power and Power factor	T1-96	Chalk &Board
	25.	6/7/2023	Problems on series circuits	T1-98	Chalk &Board
	26.	7/7/2023	Problems on series circuits	T1-100	Chalk &Board
	27	10/7/2023	Three Phase circuits: Generation of 3 phase power, Advantages and limitations of 3-phase power.	T1-102	Chalk &Board
	28.	11/7/2023	Voltage and current relations in star and delta connections.	T1-106	Chalk &Board
	29.	13/7/2023	Module 3: DC Machines:	T1-110	Chalk &Board
III			<b>DC Generator</b> : Principle of operation, constructional details		
	30	14/7/2023	Induced emf expression, Typesof generat	T1-118	Chalk &Board
	31.	15/7/2023	The relation between induced emf and terminal voltage and problems	T1-120	Chalk &Board
	32.	17/7/2023	Problems	T1-130	Chalk &Board

	33.	18/7/2023	Problems	T1-132	Chalk &Board
	34.	20/7/2023	Problems	T1-135	Chalk &Board
	35.	21/7/2023	DC Motor: Principle of operation	T1-137	Chalk &Board
	36.	24/7/2023	Back emf and and its significance, torque equations	T1-138	Chalk &Board
	37.	25/7/2023	Types of motors, characteristics (shunt and series only), and applications.	T1-139	Chalk &Board
	38.	27/7/2023	Speed control(shunt and series only),	T1-140	Chalk &Board
	39.	28/7/2023	Problems	T1-141	Chalk &Board
	40.	31/7/2023	Problems	T1-145	Chalk &Board
	41.	1/8/2023	Problems	T1-147	Chalk &Board
	42.	7/8/2023	Module 4: Single Phase Transformers: Necessity of transformer, Principle of operation.	T1-148	Chalk &Board
	43.	8/8/2023	Types and construction of transformers.	T1-149	Chalk &Board
IV	44.	10/8/2023	EMF equation, losses.	T1-150	Chalk &Board
	45.	11/8/2023	Problems on emf equation	T1-152	Chalk &Board
	46.	12/8/2023	Variation of losses with respect to load, efficiency.	T1-154	Chalk &Board
	47.	14/8/2023	Condition for maximum efficiency.	T1-155	Chalk &Board
	48.	17/8/2023	problems	T1-157	Chalk &Board
	49.	18/8/2023	problems	T1-158	Chalk &Board
	50.	21/8/2023	problems	T1-159	Chalk &Board
-	51.	22/8/2023	ThreePhaseInductionMotors:Principleofoperationandconceptofrotatingmagneticfield.inductioninductioninduction	T1-160	Chalk &Board
	52.	24/8/2023	Construction and types of three-phase induction motor.	T1-162	Chalk &Board
	53.	25/8/2023	Working principle of three-phase induction motor.	T1-163	Chalk &Board
	54.	26/8/2023	Types – squirrel cage and wound rotor	T1-165	Chalk &Board

	55.	28/8/2023	Slip and its significance.	T1-166	Chalk &Board
	56.	29/8/2023	problems	T1-167	Chalk &Board
	57.	31/8/2023	Module 5: Domestic Wiring:	T1- 170	PPT
			Requirements, Types of wiring: casing,		
			capping. Two way and three way control		
			of load.		
	58.	1/9/2023	Electricity bill: Power rating of	T1-172	PPT
			household appliances including air		
			conditioners, PCs, laptops, printers, etc.		
	59.	7/9/2023	Definition of "unit" used for	T1-175	PPT
			consumption of		
			electrical energy, two-part electricity		
V			tariff, Calculation of electricity bill for		
			domestic consumers.		
	60	8/9/2023	Equipment Safety measures: Working	T1-176	PPT
			principle of Fuse and Miniature circuit		
			breaker (MCB), merits and demerits		
	61	9/9/2023	Personal safety measures: Earthing	T1-178	PPT
			and		
			its types, Electric Shock, Safety		
			precautions to avoid Shock		

### **COURSE OUTCOMES:**

**CO1:** Understand the concepts of various energy sources and Electric circuits.

CO2 : Apply the basic Electrical laws to solve circuits.

CO3 : Discuss the construction and operation of various Electrical Machines.

**CO4 :** Identify suitable Electrical machine for practical implementation.

CO5: Explain the concepts of electric power transmission and distribution, electricity billing,

circuit protective devices and personal safety measures.

**Assignment Topics:** 

Sl. No.	Assignment Topics	References
1.	Assignment Test - I	R1
2.	Assignment Test - II	T1

### **Text Books:**

T1: Basic Electrical Engineering, D C Kulshreshtha, TMH, Revised first edition.

**T2:** A Text book of Electrical Technology by B.L. Theraja, S Chand and Company, reprint edition 2014.

### **Reference Books:**

**R1**:Basic Electrical Engineering, D. P. Kothari and I. J. Nagrath, Tata McGraw Hill 4th edition, 2019

**R2:**Principles of Electrical Engineering & Electronics by V. K. Mehta, Rohit Mehta, S. Chand and Company Publications, 2nd edition, 2015.

R3: Fundamentals of Electrical Engineering by Rajendra Prasad, PHI, 3rd edition, 2014.

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HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan

Date: 30/10/22

Subject code	: 21EE32
Subject Title	: Analog Electronics & Opamps
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: III
Academic Year	: 2022 – 2023 (ODD)
Faculty Name	: Jayakumar N
COUDCE OD TEC	

# **COURSE OBJECTIVE:**

To provide the knowledge for the analysis of transistor biasing and thermal stability circuits. To develop skills to design the electronic circuits like amplifiers, power amplifiers and oscillators. To understand the importance of FET and MOSFET and FET/MOSFET amplifiers

# **COURSE OUTCOME:**

At the end of the course the student will be able to:

- 1. Utilize the characteristics of transistor for different applications.
- 2. Design and analyze biasing circuits for transistor.
- 3. Design, analyze and test transistor circuitry as amplifiers and oscillators

Unit	Topic No.	Date	Торіс	Text Referred & Page No	Pedagogy
Ι	1	31-10- 22	Diode clipping	T1, R1	Chalk &Board & PPT
	2	2-11-22	The operating point, load line analysis	T1, R1	Chalk &Board & PPT
	3	2-11-22	DC analysis and design of fixed bias circuit	T1, R1	Chalk &Board & PPT
	4	3-11-22	emitter stabilized bias circuit, collector to base bias circuit	T1, R1	Chalk &Board & PPT
	5	7-11-22	voltage divider bias circuit,	T1, R1	Chalk &Board & PPT
	6	9-11-22	Modified DC bias with voltage feedback	T1, R1	Chalk &Board & PPT
	7	9-11-22	. Bias stabilization and stability factors for fixed bias circuit	T1, R1	Chalk &Board & PPT
	8	10-11- 22	collector to base bias circuit and voltage divider bias circuit	T1, R1	Chalk &Board & PPT
	9	14-11- 22	bias compensation, Transistor switching	T1, R1	Chalk &Board & PPT

			circuits.		
	10	16-11-	Hybrid model	T1, R1	Chalk &Board & PPT
	11	16-11- 22	h-parameters for CE, CC and CB modes	T1, R1	Chalk &Board & PPT
	12	17-11- 22	mid-band analysis of single stage amplifier, simplified hybrid model	T1, R1	Chalk &Board & PPT
Π	13	18-11- 22	, analysis for CE, CB and CC(emitter voltage follower circuit) modes,	T1, R1	Chalk &Board & PPT
	14	21-11- 22	Millers Theorem and its dual, analysis for collector to base bias circuit and CE with un bypassed emitter resistance.	T1, R1	Chalk &Board & PPT
	15	23-11- 22	Transistor frequency response: General frequency considerations, effect of various capacitors on frequency response	T1, R1	Chalk &Board & PPT
	16	23-11- 22	CE short circuit current gain using hybrid pi model, multistage frequency effects	T1, R1	Chalk &Board & PPT
	17	24-11- 22	Cascade connection , analysis for CE-CC mode, CE-CE mode	T1, R1	Chalk &Board & PPT
	18	28-11- 22	CASCODE stage- unbypassed and bypassed emitter resistance modes	T1, R1	Chalk &Board & PPT
	19	5-12-22	Darlington connection using h-parameter model	T1, R1	Chalk &Board & PPT
	20	7-12-22	Feedback Amplifiers: Classification of feedback amplifiers	T1, R1	Chalk &Board & PPT
	21	7-12-22	, concept of feedback, general characteristics of negative feedback amplifiers,	T1, R1	Chalk &Board & PPT
	22	8-12-22	Input and output resistance with feedback of various feedback amplifiers,	T1, R1	Chalk &Board & PPT
	23	12-1 <del>2-</del> 22	analysis of different practical feedback amplifier circuits.	T1, R1	Chalk &Board & PPT
		14-12-	Classification of power		Chalk &Board
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	24	22	amplifiers, Analysis of	T1, R1	& PPT
			class A, Class B	,	
	25	14-12-	class C and Class AB	T1 R1	Chalk &Board
	25	22	amplifiers	11, 101	& PPT
		15-12-	Distortion in power		Chalk & Board
	26	22	amplifiers second	T1 D1	
	20	22	harmonic distortion	11, KI	a III
		10.12	harmonic distortion in		Chalk & Board
		22	Class B amplifiers cross		
	27	22	over distortion and		
	21		alimination of group over	<b>T</b> 1 <b>D</b> 1	
			distortion	11, RI	
		21.12			$C_{1} = 11 = 0$ D $= 1 = 1$
	28	21-12-	Oscillators: Concept of	T1, R1	Chalk & Board
		22	positive reedback,		
	20	21-12-	frequency of oscillation		Chalk & Board
	29	22	for RC phase oscillator,	T1, R1	& PPT
			Wien Bridge oscillator		
	30	22-12-	Tuned oscillator circuits,	T1, R1	Chalk &Board
	50	22	Hartley oscillator,		& PPT
		26-12-	Colpitt's oscillator,		Chalk &Board
	31	22	crystal oscillator and its	T1, R1	& PPT
			types.		
		28-12-	FETs: Construction,		Chalk &Board
	32	22	working and		& PPT
	52		characteristics of JFET	T1, R1	
			and MOSFET		
		28-12-	Biasing of JFET and		Chalk &Board
	33	22	MOSFET. Fixed bias	T1, R1	& PPT
			configuration		
	24	29-12-	self bias configuration,	T1, R1	Chalk &Board
	54	22	voltage divider biasing		& PPT
		31-12-	Analysis and design of		Chalk &Board
III	25	22	JFET (only common		& PPT
	55		source configuration with	T1, R1	
			fixed bias)	,	
	26	31-12-		T1, R1	Chalk &Board
	50	22	MOSFET	,	& PPT
		2-01-23			Chalk &Board
	37			T1. R1	& PPT
			Diode clipping	,	
	20	05-01-	The operating point, load	T1. R1	Chalk &Board
	38	23	line analysis	,	& PPT
	20	09-01-	DC analysis and design of	T1, R1	Chalk &Board
	39	23	fixed bias circuit		& PPT
		11-01-	emitter stabilized bias		Chalk &Board
	40	23	circuit, collector to base	T1 R1	& PPT
	-		bias circuit	,	

	41	11-01-	voltage divider bias	T1, R1	Chalk &Board
	41	23	circuit,	,	& PPT
	42	12-01-	Modified DC bias with	T1, R1	Chalk &Board
	42	23	voltage feedback		& PPT
		14-01-	. Bias stabilization and		Chalk &Board
	43	23	stability factors for fixed	T1, R1	& PPT
			bias circuit		
		16-01-	collector to base bias		Chalk &Board
	44	23	circuit and voltage divider	T1, R1	& PPT
			bias circuit		
IV		18-01-	bias compensation,		Chalk &Board
	45	23	Transistor switching	T1, R1	& PPT
			circuits.		
	16	18-01-		T1, R1	Chalk &Board
	40	23	Hybrid model		& PPT
	17	19-01-	h-parameters for CE, CC	T1, R1	Chalk &Board
	47	23	and CB modes		& PPT
		23-01-	mid-band analysis of		Chalk &Board
	48	23	single stage amplifier,	T1, R1	& PPT
			simplified hybrid model	,	
		25-01-	, analysis for CE, CB and		Chalk &Board
	49	23	CC(emitter voltage	T1, R1	& PPT
			follower circuit) modes,		
		25-01-	Millers Theorem and its		Chalk &Board
		23	dual, analysis for		& PPT
	50		collector to base bias		
	50		circuit and CE with un		
			bypassed emitter	T1, R1	
			resistance.		
		30-01-	Transistor frequency		Chalk &Board
		23	response: General		& PPT
	51		frequency considerations,		
	51		effect of various		
			capacitors on frequency	T1, R1	
V			response		
		06-02-	CE short circuit current		Chalk &Board
	52	23	gain using hybrid pi		& PPT
	02		model, multistage	T1, R1	
			frequency effects		
		08-02-	Cascade connection,		Chalk &Board
	53	23	analysis for CE-CC	T1, R1	& PPT
		00.07	mode, CE-CE mode		
	<i>~</i> .	08-02-	CASCODE stage-		Chalk & Board
	54	23	unbiased and bypassed	T1, R1	& PPT
		00.00	emitter resistance modes		
	55	09-02-	Darlington connection	T1, R1	Chalk & Board
		23	using h-parameter model		& PPT
	56	31-10-	Feedback Amplifiers:	T1, R1	Chalk & Board
		22	Classification of feedback		& PPT

			amplifiers			
	57	2-11-22	, concept of feedback, general characteristics of negative feedback amplifiers,	T1, R1	Cha & F	alk &Board PPT
Assignment Topics:						
Sl.No		References				
1	Assignment Module 1, 2 T1					
2	Assignment Module 4 T1					T1
3	Assignment Module 5					T1

Deals Trues	Cada		Publication Information		
воок туре	Code	Title & Author	Edition	Publisher	Year
Text Books	T1	Electronic Devices and Circuit Theory, Robert L Boylestad Louis Nashelsky	11 <sup>th</sup> Edition	Pearson,	2015
	Т2	Electronic Devices and Circuits, Millman and Halkias	4 <sup>th</sup> Edition	McGraw Hill	2015
Reference Books	R1	Microelectronics Circuits Analysis and Design, Muhammad Rashid	2 <sup>nd</sup> Edition	Cengage Learning,	2014

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(Jayakumar N) -Faculty

(Dr.Bharath V S) HOD / EEE

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## **THE OXFORD COLLEGE OF ENGINEERING** HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 **Department of Electrical and Electronics Engineering**

#### **Lesson Plan**

Date: 31/10/2022

Subject code/Title: 21EE33/ Electric circuit AnalysisCourse / Branch: BE/EEESemester: IIIAcademic Year: 2022-23 (ODD)Faculty Name: Mrs. Sumitha T L

#### **COURSE OBJECTIVES:**

• To familiarize the basic laws, source transformations, theorems and the methods of analyzing electrical circuits.

• To explain the use of network theorems and the concept of resonance.

• To familiarize the analysis of three-phase circuits, two port networks and networks with non-sinusoidal inputs.

• To explain the importance of initial conditions, their evaluation and transient analysis of R-L and R-C circuits.

• To impart basic knowledge on network analysis using Laplace transforms.

PREREQUISITE(s): Ohms Law, Kirchhoff's Current and Voltage law	, Potential divider
rule and Current divider rule	

`Sl. No.	Topic No.	Date	Topics	Books Referred	Pedagogy
	1	21/10/22	Module 1- Basic Concepts: Active and passive	T1	Chalk and Talk
		51/10/22	elements, Concept of ideal and practical source		
	2	04/11/22	Source Transformation	T1	Chalk and Talk
	3	07/11/22	Source Transformation	T1	Chalk and Talk
	4	08/11/22	Source shifting	T1	Chalk and Talk
	5	08/11/22	Star-delta Transformation	T1	Chalk and Talk
Ι	6	14/11/22	Network reduction method - Mesh Analysis	T1	Chalk and Talk
	7	15/11/22	Network reduction method - Mesh Analysis	T1	Chalk and Talk
	8	15/11/22	Network reduction method - Nodal Analysis	T1	Chalk and Talk
	9	21/11/22	Network reduction method - Nodal Analysis	T1	Chalk and Talk
	10	22/11/22	Super Mesh Analysis	T1	Chalk and Talk
	11	22/11/22	Super Node Analysis	T1	Chalk and Talk
	12	25/11/22	Duality	T1	Chalk and Talk
	13	28/11/22	Module 2 – Network Theorems: Superposition	T1, T2	Chalk and Talk
			theorem statement, Problem 1		
	14	29/11/22	Superposition theorem – Problems 2,3	T1, T2	Chalk and Talk
	15	29/11/22	Superposition theorem – Problems 4,5	T1, T2	Chalk and Talk
п	16	02/12/22	Thevenin's theorem statement, Problem 1	T1, T2	Chalk and Talk
11	17	05/12/22	Thevenin's theorem – Problems 2,3	T1, T2	Chalk and Talk
	18	06/12/22	Thevenin's theorem – Problems 4,5	T1, T2	Chalk and Talk
	19	06/12/22	Norton's theorem statement, Problem 1	T1, T2	Chalk and Talk
	20	09/12/22	Norton's theorem – Problems 2,3	T1, T2	Chalk and Talk
	21	10/12/22	Norton's theorem – Problems 4,5	T1, T2	Chalk and Talk

	22	12/12/22	Maximum Power transfer theorem statement,	T1, T2	Chalk and Talk
	23	13/12/22	Maximum Power transfer theorem – Problems	T1. T2	Chalk and Talk
		10/12/22	2,3		
	24	13/12/22	Maximum Power transfer theorem – Problems 4,5	T1, T2	Chalk and Talk
	25	16/12/22	Module 3 - Resonant Circuits & Transient	T2	Chalk and Talk
			circuits under resonance		
	26	19/12/22	Problems on Resonant frequency, Bandwidth	T2	Chalk and Talk
			and Quality factor in series resonant circuit		
	27	20/12/22	Problems on Resonant frequency, Bandwidth	T2	Chalk and Talk
			and Quality factor in series resonant circuit		
	28	20/12/22	Analysis of simple Parallel RLC circuits under	T2	Chalk and Talk
	20	22/12/22	Problems on Desonant frequency. Pandwidth	тĵ	Challs and Talls
ш	29	23/12/22	and Quality factor in parallel resonant circuit	12	
	30	26/12/22	Problems on Resonant frequency. Bandwidth	T2	Chalk and Talk
			and Quality factor in parallel resonant circuit		
	31	27/12/22	Transient analysis of RL circuits under DC	T2	Chalk and Talk
			excitation		
	32	27/12/22	Transient analysis of RL circuits under DC	T2	Chalk and Talk
		20/12/22	excitation	<b>T</b> 2	
	33	30/12/22	I ransient analysis of RC circuits under DC	12	Chalk and Talk
	34	02/01/23	Transient analysis of RC circuits under DC	T2	Chalk and Talk
	51	02/01/20	excitation	12	
	35	03/01/23	Module 4 – Laplace Transformation:	T1	Chalk and Talk
			LT of Impulse function		
	36	03/01/23	LT of Impulse function	T1	Chalk and Talk
	37	06/01/23	LT of Step function	T1	Chalk and Talk
	38	09/01/23	LT of Step function	TI T1	Chalk and Talk
IV	39	10/01/23	LT of Ramp function		Chalk and Talk
	40	13/01/23	Initial and Final value theorems	T1 T1	Chalk and Talk
	42	13/01/23	Numericals based on Initial and Final value	T1	Chalk and Talk
			theorem		
	43	16/01/23	Solution of electric circuits using LT	T1	Chalk and Talk
	44	16/01/23	Solution of electric circuits using LT	T1	Chalk and Talk
	45	17/01/23	Module 5-Unbalanced Three Phase Systems	T2	Chalk and Talk
	10	17/01/02	& Two Port networks: Analysis of 3-ph system	TO	
	40	17/01/23	Calculation of real and reactive power	12 T2	Chalk and Talk
	47	18/01/23	Numericals based on Z parameters	T2 T2	Chalk and Talk
N7	49	20/01/23	Short Circuit Admittance (Y) parameters	T2	Chalk and Talk
v	50	20/01/23	Numericals based on Y parameters	T2	Chalk and Talk
	51	23/01/23	Transmission (T or ABCD) parameters	T2	Chalk and Talk
	52	23/01/23	Numericals based on T parameters	T2	Chalk and Talk
	53	23/01/23	Relation between Z and Y parameters	T2	PPT
	54	23/01/23	Relation between Z and T; Y and T parameters	T2	PPT

#### **COURSE OUTCOMES:**

At the end of the course the student will be able to:

1. Understand the basic concepts, basic laws and methods of analysis of DC and AC networks and reduce the complexity of network using source shifting, source transformation a n d network reduction using transformations.

2. Solve complex electric circuits using network theorems.

3. Discuss resonance in series and parallel circuits and also the importance of initial conditions and their evaluation.

4. Synthesize typical waveforms using Laplace transformation.

5. Solve unbalanced three phase systems and also evaluate the performance of two port networks.

#### **Assignment Topics**

Sl. No.	Assignment Topics	Submission due on
1	Problems on Source transformation, Source shifting, Star-delta	23/11/2022
	transformation, Mesh and Nodal Analysis	
2	Problems on Network Theorems and Resonant circuits	10/012023

#### **Text Books:**

T1: Engineering Circuit Analysis, William H Hayt et al, Mc Graw Hill,8th Edition,2014. T2: Network Analysis, M.E. Vanvalkenburg, Pearson, 3rd Edition,2014.

#### **Reference Books:**

R1: Fundamentals of Electric Circuits, Charles K Alexander Matthew N O Sadiku, Mc Graw Hill, 5th Edition

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HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical and Electronics Engineering

Lesson Plan

Date:30/10/22

Subject code:21EE34Subject Title:Transformers and GeneratorsCourse / Branch:BE/EEESemester: IIIAcademic Year:2022-2023-Odd SemFaculty Name:Mrs Resna S R

#### **Course Objectives:**

- To understand the concepts of transformers and their analysis.
- To suggest a suitable three phase transformer connection for a particular operation
- To understand the concepts of generator and to evaluate their performance.
- To explain the requirement for the parallel operation of transformers and synchronous generators.•

**PREREQUISITE**(s): Basic Principles of Transformers and Generators

Module	Topic No.	Date	Торіс	Text Referred& Page	Pedagogy
	1	31-10-22	Introduction, Working Principle, Types of transformers		Chalk &Board
	2	2-11-22	Operation of practical transformer under no-load and on-load with phasor diagrams.		Chalk &Board
	3	2-11-22	Open circuit and Short circuit tests		Chalk &Board
	4	3-11-22	Problems	T1:48-89	Chalk &Board
	5	7-11-22	Problems		Chalk &Board
1	6	9-11-22	Calculation of equivalent circuit parameters and predetermination of efficiency-commercial		Chalk &Board
	7	9-11-22	Problems		Chalk &Board
	8	10-11-22	All-day efficiency		Chalk &Board
	9	14-11-22	Voltage regulation and its significance.		Chalk &Board
	10	16-11-22	Problems		Chalk &Board
	11	16-11-22	Three-phase Transformers: Introduction		Chalk &Board
	12	17-11-22	Constructional features of three-phase transformers.	]	Chalk &Board

		18-11-22	Choice between single unit three-phase		Chalk
	13		transformer and a bank of three single-phase		&Board
			transformers	T1:101-115	
	14	21-11-22	Transformer connection for three phase		Chalk
	14		operation- star/star, delta/delta		&Board
	1.5	23-11-22	star/delta, zigzag/star and V/V, comparative		Chalk
	15		features		&Board
	16	23-11-22	Phase conversion-Scott connection for three-		Chalk
	16		phase to two-phase conversion		&Board
	15	24-11-22	Problems		Chalk
	1/				&Board
	10	28-11-22	Labeling of three-phase transformer terminals.		Chalk
	18		vector groups.		&Board
	10	5 12 22	Polarity test, Sumpner's test		Chalk
	19	5-12-22	5 7 1		&Board
	• •	7-12-22	Separation of hysteresis and eddy current losses	-	Chalk
	20		jj.	T1:116-131	&Board
		7-12-22	Necessity of Parallel operation. conditions for	1 -	Chalk
2	21		parallel operation– Single phase and three phase		&Board
		8-12-22	Load sharing in case of similar and dissimilar		Chalk
	22		transformers		&Board
		12-12-22	Introduction to autotransformer-copper	T2:69-79	Chalk
	23		economy, equivalent circuit		&Board
		14-12-22	No load and on load tap changing transformers.		Chalk
	24				&Board
		14-12-22	Three-winding transformers	T2:69-79	Chalk
	25		6		&Board
	• (	15-12-22		-	Chalk
	26		Cooling of transformers		&Board
	27	19-12-22	Direct current Generator: Armature reaction	T1:285-357	Chalk
	27				&Board
3	20	21-12-22	Commutation and associated problems		Chalk
	28		1		&Board
	20	21-12-22	Synchronous Generators: Armature windings,	T2:221-236	Chalk
	29		Winding Factors		&Board
	20	22-12-22	E.M.F equation		Chalk
	30		1		&Board
	21	26-12-22	Harmonics-causes, reduction and elimination		Chalk
	31				&Board
	22	28-12-22	Armature reaction		Chalk
	32				&Board
	22	28-12-22	Synchronous reactance, Equivalent circuit	1	Chalk
	33				&Board
	24	29-12-22	Synchronous Generators Analysis: Alternator on		Chalk
	54		load		&Board
	25	31-12-22	Excitation control for constant terminal voltage	1	Chalk
	35				&Board
4	26	31-12-22	Voltage regulation	1	Chalk
	36			T2:415-450	&Board
		-		-	

	37	2-01-23	Open circuit and short circuit characteristic		Chalk &Board
		05-01-23	Assessment of reactance-short circuit ratio		Chalk
	38	05-01-25	Assessment of reactance-short circuit ratio		&Board
	20	09-01-23	synchronous reactance		Chalk
	39				&Board
	40	11-01-23	Voltage regulation by EMF methods.		Chalk
	70				&Board
	41	11-01-23	Voltage regulation by MMF methods.		Chalk
	71				&Board
	12	12-01-23	Voltage regulation by ZPF methods.		Chalk
	42				&Board
	13	14-01-23	Problems		Chalk
	43				&Board
	11	16-01-23	Problems		Chalk
	44				&Board
	15	18-01-23	Effects of saliency, two-reaction theory		Chalk
	43				&Board
	46	18-01-23	Parallel operation of generators and load sharing		Chalk
					&Board
	47	19-01-23	Methods of Synchronization		Chalk
	47				&Board
5	18	23-01-23	Synchronizing power	T2:451-499	Chalk
	40				&Board
	40	25-01-23	Determination of Xd & Xq – slip test		Chalk
	49				&Board
	50	25-01-23	Performance of Synchronous Generators: Power		Chalk
	50		angle characteristic (salient and non salient pole)		&Board
	51	30-01-23	Power angle diagram		Chalk
	51				&Board
	52	06-02-23	Reluctance power		Chalk
	52				&Board
	53	08-02-23	Capability curve for large turbo generators.		Chalk
	55				&Board
	54	08-02-23	Hunting and damper windings		Chalk
	54				&Board
	55	09-02-23	Revision		Chalk
	55				&Board

#### **Outcomes of the Course**:

At the end of the course the student will be able to :

- Understand the construction and operation of 1-phase, 3-Phase transformers, and Autotransformer.
- Analyze the performance of transformers by polarity test, Sumpner's Test, phase conversion, 3-phase connection, and parallel operation.
- Understand the construction and working of AC and DC Generators
- Analyze the performance of the AC Generators on infinite bus and parallel operation.

- Determine the regulation of AC Generator by Slip test, EMF, MMF, and ZPF Methods
- Performance of synchronous generators, power angle characteristics

Assignment	<b>Topics</b> :

Sl.No	Торіс	References
1	Module 1&2	T1
2	Module 2&3	T1
3	Module 4&5	T1

#### **Text Books:**

T1: Electric Machines, D. P. Kothari, et al, 4 th Edition, 2011.

T2: Principals of Electrical Machines, V.K Mehta, Rohit Mehta, S Chand, 2nd edition, 2009.

#### **Reference Books**:

R1:Electric Machines, MulukuntlaS.Sarma, at el, Cengage, 1st Edition, 2009.

**R2**:Electrical Machines, Drives and Power systems, Theodore Wildi, Pearson, 6th Edition, 2014.

R3:Electric Machines, Ashfaq Hussain, Dhanpat Rai & Co, 2nd Edition, 2013.

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# THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

**Department of Electrical and Electronics Engineering** 

## Lesson Plan

Date:30/10/2022

Subject code	: 21EEL35
Subject Title	: ELECTRICAL MACHINES LABORATORY – I
Course / Branch	: B.E/EEE
Semester	: III
Academic Year	: 2022-2023(Odd Sem)
Faculty Name	: Mrs.Resna S R
Course objectives	:

- Conducting of different tests on transformers and synchronous machines and evaluation of their performance.
- Verify the parallel operation of two single phase transformers.
- Study the connection of single phase transformers for three phase operation and phase conversion. ٠
- Study of synchronous generator connected to infinite bus.

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	TOPIC NO.	DATE	ΤΟΡΙΟ
	1	08-11-22	Open Circuit and Short circuit tests on single phase step up or step down transformer and predetermination of (i) Efficiency and regulation (ii) Calculation of parameters of equivalent circuit
	2	15-11-22	Sumpner's test on similar transformers and determination of combined and individual transformer efficiency
	3	22-11-22	Parallel operation of two dissimilar single-phase transformers of different kVA and determination of load
CYCLE I	4	29-11-22	Polarity test and connection of 3 single-phase transformers in star – delta and determination of efficiency and regulation under balanced resistive load.
	5	06-12-22	Comparison of performance of 3 single-phase transformers in delta – delta and V – V (open delta) connection under load.
	6	13-12-22	Scott connection with balanced and unbalanced loads
	7	17-12-22	Internal-I
CYCLE II	8	13-12-22	Separation of hysteresis and eddy current losses in single phase transformer
	9	27-12-22	Voltage regulation of an alternator by EMF and MMF methods.
	10	10-01-23	Voltage regulation of an alternator by ZPF method.
	11	17-01-23	Power angle curve of synchronous generator or Direct load test on three phase synchronous generator to determine efficiency and regulation
	12	24-01-23	Slip test – Measurement of direct and quadrature axis reactance and predetermination of regulation of salient pole synchronous machines
	13	31-01-23	Performance of synchronous generator connected to infinite bus, under constant power and variable excitation & vice - versa.

	14	07-02-23	Internal II
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#### **Course outcomes**:

At the end of the course the student will be able to:

- Evaluate the performance of transformers from the test data obtained.
- Connect and operate two single phase transformers of different KVA rating in parallel.
- Connect single phase transformers for three phase operation and phase conversion.
- Compute the voltage regulation of synchronous generator using the test data obtained in the laboratory.
- Evaluate the performance of synchronous generators from the test data and assess the performance of synchronous generator connected to infinite bus

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HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical & Electronics Engineering Lesson Plan

Date: 15/11/2023

Subject code	: BSCK307
Subject Title	: Social Connect and Responsibility
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: III
Academic Year	: 2023-24 (Odd)
Faculty Name	: Mrs Nisha C Rani

#### **COURSE OBJECTIVE:**

The course will enable the students to:

- 1. Provide a formal platform for students to communicate and connect to the surrounding.
- 2. create a responsible connection with the society.

3. Understand the community in general in which they work.

4. Identify the needs and problems of the community and involve them in problem - solving.

5. Develop among themselves a sense of social & civic responsibility & utilize their knowledge

in finding practical solutions to individual and community problems.

6. Develop competence required for group-living and sharing of responsibilities & gain skills

in mobilizing community participation to acquire leadership qualities and democratic attitudes.

#### **COURSE OUTCOME:**

Course outcomes (Course Skill Set):

At the end of the course, the student will be able to:

CO1: Communicate and connect to the surrounding.

CO2: Create a responsible connection with the society.

CO3: Involve in the community in general in which they work.

CO4: Notice the needs and problems of the community and involve them in problem – solving.

CO5: Develop among themselves a sense of social & civic responsibility & utilize their knowledge

in finding practical solutions to individual and community problems.

CO6: Develop competence required for group-living and sharing of responsibilities & gain skills

in mobilizing community participation to acquire leadership qualities and democratic attitudes

#### **PREREQUISITE(s):**

Basics awareness of social responsibilities

Unit	Topic No.	Date	Торіс	Period	Pedag ogy
					PPT &
	1	1 17/11/23	Introduction to Social Connect and Responsibility	4	Smart
				4	Board
	2	24/11/22	Lacture session and planning to start Plantation	4	PPT & Smort
	2	24/11/23	Lecture session and plaining to start I fantation		Board
				4	PPT &
	3	1/12/23	Sharing the experience by students about plantation activity		Smart
					Board
				4	PPT &
Ι	4	8/12/23	Planning and Discussion on Heritage walk, crafts		Smart
				4	Board
	5	5 15/10/00	Video haad anagentation by students haad on Usuitage walls	4	PPT &
	5	13/12/23	video based presentation by students based on Heritage walk		Smart Board
					PPT &
	6	22/12/23	Planning and Discussion on Waste Management and Organic		Smart
			Tarming		Board
	7	7 5/1/24 SI	Sharing the experience by students about Waste Management and Organic farming activity (ppt)	4	PPT &
					Smart
			and organic ranning activity (ppt)		Board
				4	PPT &
	8	12/1/24	Planning and Discussion on Water Conservation		Smart
				1	DDT &
	9	9 19/1/24	Sharing the experience by students about creating awareness to people about water conservation	4	Smart
					Board
				4	PPT &
т	10	2/2/24	Planning and Discussion on food culture		Smart
11					Board
				4	PPT &
	11	9/2/24	Food walk		Smart
				4	Board
	12	16/2/24	Jamming Session on Various social connect activities	4	PPI & Smort
	12	10/2/24	Jamming Session on various social connect activities		Board
					Dualu



Faculty

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electronics and Communication Engineering

Lesson Plan

Date: 14/10/2022

Subject code/Title	: 18EE51/Management &	Entrepreneurship
Course / Branch	: BE/EEE	
Semester	: V	
Academic Year	: 2022-23 (ODD)	
Faculty Name	: Dr. Bharath V S	

#### **COURSE OBJECTIVE:**

- To introduce the field of management, task of the manager, importance of planning and types of planning, staff recruitment and selection process.
- To discuss the ways in which work is allocation, structure of organizations, modes of communication and importance of managerial control in business. To explain need of coordination between the manager and staff, the social responsibility of business and leadership.
- To explain various types of entrepreneurs and their functions, the myths of entrepreneurship and the factors required for capacity building for entrepreneurs
- To discuss the importance of Small Scale Industries and the related terms and problems involved.
- To discuss methods for generating new business ideas and business opportunities in India and the importance of business plan.
- To introduce the concepts of project management and discuss capitol building process. To explain project feasibility study and project appraisal and discuss project financing

#### **PREREQUISITE**(s) :

Basics of management and planning.

Social Responsibilities of Business & Entrepreneurship.

Module	Topic No.	Date	Торіс	Books Referred & Pages	Pedagogy
	1	17/10/22	<b>Module1: Management-</b> Definition, Importance – Nature and Characteristics of Management	T1:1-9, 31-33	Chalk and talk
2 18/10/22 Management Functions T1:1-2, 24-26 Cha					
I	3	19/10/22	T1: 20-23	Chalk and talk	
	4	20/10/22	Management & Administration, Management as a Science, Art & Profession	T1:16-19	Chalk and talk
	5	25/10/22	Nature, Importance and Purpose Of Planning, Types of Plans	T1:33-35	Chalk and talk

	6	27/10/22	Steps in Planning, Limitations of Planning	T1:36-44	Chalk and talk
	7	31/10/22	Decision Making – Meaning Types of	T1·45-65	Chalk and talk
	,	51110122	Decisions	11.10 00	
	8	02/11/22	Steps in Decision Making.	T1:68-69	Chalk and talk
	9	03/11/22	Managerial Skills, Question Paper discussion	T1:69-72	Chalk and talk
	10	07/11/22	Question Paper discussion	T1:73-76	Chalk and talk
	11	08/11/22	VTU QP Discussion	T1:77-82	Chalk and talk
	12	09/11/22	Revision	T1:83-86	Chalk and talk
	13	10/11/22	Module 2: Organizing and Staffing -	T1: 122-123	Chalk and talk
			Meaning, Nature and Characteristics of Organization		
	14	14/11/22	Process of Organization, Principles of Organization	T1:137-141	Chalk and talk
	15	15/11/22	Departmentalization, Centralization Versus Decentralization of Authority and Responsibility	T1:141-142	Chalk and talk
	16	16/11/22	Committees – meaning, Types of Committees, Span of Control (Definition only)	T1:142-145	Chalk and talk
п	17	17/11/22	Nature and Importance of Staffing, Process of Selection and Recruitment.	T1:122-127	Chalk and talk
	18	21/11/22	<b>Directing and Controlling</b> : Meaning and Nature of Directing-Leadership Styles,	T1:128-134	Chalk and talk
	19	22/11/22	Motivation Theories Communication – Meaning and Importance	T1:135-136	Chalk and talk
	20	23/11/22	Coordination- Meaning and Importance, Techniques of Coordination.	T1:147-151	Chalk and talk
	21	24/11/22	Controlling – Meaning, Steps in Controlling	R1: 83-92	Chalk and talk
	22	25/11/22	Question Paper discussion	R1: 92-98	Chalk and talk
	23	28/11/22	VTU QP Discussion	R1: 98-102	Chalk and talk
	24	29/11/22	Revision	R1: 103-106	Chalk and talk
Ш	25	30/11/22	Module 3: Social Responsibilities of Business: Meaning of Social	T1: 304-305	Chalk and talk

			Responsibility, Social Responsibilities		
			of Business towards Different Groups,		
	26	01/12/22	Social Audit, Business Ethics and Corporate Governance.	T1:305-307	Chalk and talk
	27	05/12/22	Entrepreneurship:DefinitionofEntrepreneur,ImportanceofEntrepreneurship,	T1:307-309	Chalk and talk
	28	06/12/22	conceptsofEntrepreneurship,CharacteristicsofsuccessfulEntrepreneur,	T1:309-313	Chalk and talk
	29	07/12/22	Classification of Entrepreneurs, Intrapreneur – An Emerging Class,	T1:314-330	Chalk and talk
	30	08/12/22	Comparison between Entrepreneur and Intrapreneur,	T1:314-330	Chalk and talk
	31	12/12/22	Myths of Entrepreneurship,	T1:135-136	Chalk and talk
	32	13/12/22	Entrepreneurial Development models,	T1:337-339	Chalk and talk
	33	14/12/22	Entrepreneurial development cycle,	R1:137-148	Chalk and talk
	34	15/12/22	Problems faced by Entrepreneurs and capacity building for Entrepreneurship	R1:149-157	Chalk and talk
	35	19/12/22	VTU QP Discussion	R1:157-165	Chalk and talk
	36	20/12/22	Module 4: Modern Small Business Enterprises: Role of Small Scale Industries, Concepts and definitions of SSI Enterprises,	T1: 431-432	Chalk and talk
	37	21/12/22	Government policy and development of the Small Scale sector in India,	T1:431-432	Chalk and talk
IV	38	22/12/22	Growth and Performance of Small Scale Industries in India,	T1:432-435	Chalk and talk
	39	26/12/22	Sickness in SSI sector, Problems for Small Scale Industries,	T1:436-438	Chalk and talk
	40	27/12/22	Impact of Globalization on SSI,	T1:438-443	Chalk and talk
	41	28/12/22	Impact of WTO/GATT on SSIs,	T1:445-453	Chalk and talk
	42	29/12/22	Ancillary Industry and Tiny Industry (Definition only).	T1:453-455	Chalk and talk
	43	02/01/23	Institutional Support for Business	T1:456-458	Chalk and talk

			Enterprises: Introduction		
	44	03/01/23	Policies & Schemes of Central-Level	T1:487-492	Chalk and talk
			Institutions,		
	45	04/01/23	State-Level Institutions	T1:500-505	Chalk and talk
	46	05/01/23	Policies & Schemes of Central-Level	T1:506-508	Chalk and talk
			Institutions,		
	47	09/01/23	State-Level Institutions	T1: 509-512	Chalk and talk
	48	10/01/23	VTU QP Discussion	T1:514-517	Chalk and talk
	49	11/01/23	Revision	T1:518-526	Chalk and talk
	50	12/01/23	Module 5: Project Management:	T1: 166-170	Chalk and talk,
			Meaning of Project		PPT
	51	16/01/23	Project Objectives & Characteristics,	T1:171-180	Chalk and talk, PPT
	52	17/01/23	Project Identification- Meaning &	T1:181-182	Chalk and talk,
			Importance; Project Life Cycle,		PPT
	53	18/01/23	Project Scheduling, Capital Budgeting,	T1:182-204	Chalk and talk, PPT
	54	19/01/23	Generating an Investment Project Proposal,	T1:205-216	Chalk and talk, PPT
	55	22/01/22	Due is at Dama at Nacional Classificance of	T1.006.025	DDT
	33	25/01/25	Project Report-Need and Significance of	11:220-233	PP1
			Report, Contents, Formulation,		
	56	24/01/23	Project Analysis-Market, Technical.	T1:237-247	РРТ
			Financial Economic Ecological	111207 217	
V			Project Evaluation and Selection		
	57	25/01/23	Project Financing, Project	T1:248-259	PPT
			Implementation Phase, Human &		
			Administrative aspects of Project		
			Management,		
	58	30/01/23	Prerequisites for Successful Project	T1:280-284	РРТ
			Implementation		
			imprementation.		
	59	31/01/23	New Control Techniques- PERT and	T1:285-287	PPT
			CPM, Steps involved in developing the		
			network,		
	60	01/02/23	Uses and Limitations of PERT and	T1:289-294	Chalk and talk
			СРМ		
	61	02/02/23	VTU OP Discussion		_
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#### **COURSE OUTCOMES:**

1) Explain the field of management, task of the manager, planning and the need of proper staff, recruitment and selection process.

2) Discuss work allocation, the structure of organization, the modes of communication and importance of managerial control in business.

3) To explain need of coordination between the manager and staff in exercising the authority and delegating duties.

4) To explain the social responsibility of business and leadership. Explain the concepts of entrepreneurship and the role and importance of the entrepreneur in economic development.

5) Show an understanding of the role and importance of Small Scale Industries, business plan and its presentation.

6) Discuss the concepts of project management, capitol building process, project feasibility study, project appraisal and project financing.

#### **Assignment Topics**

Activity	Unit	Planned date	Execution date	<b>Remarks</b> (Mention the bridging of curriculum gap for the course)
Assignment	Module	15/12/22	15/12/22	Indepth knowledge about Management &
Test - I	1 &2			Planning
Assignment	Module	10/01/23	10/01/23	Helps in understanding the social
Test - II	3 & 4.5			responsibilities of business.
Assignment	Module	27/01/23	27/01/23	Helps in understanding the Policies &
Test - III	4.5 & 5			Schemes of Central–Level Institutions,
				State-Level Institutions.

Book	Cada		Publicat	Publication Information		
Туре	Code	Title & Author	Edition	Publisher	Year	
Tout	T1	Principles of Management, P.C.Tripathi, P.N.Reddy	6thEdition	McGraw Hill	2017	
Books	T2	Entrepreneurship Development And Small Business Enterprises, Poornima M.Charanthimath	2nd Edition	Pearson	2014	
Df	R1	Dynamics of Entrepreneurial Development and Management, Vasant Desai	1st Edition	Himalaya Publishing House	2007	
Books	R2	Essentials of Management: An International, Innovation and Leadership perspective, Harold Koontz, Heinz Weihrich	10th Edition	McGraw Hill	2016	

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan

Date: 17/10/2022

Subject code	: 18EE52
Subject Title	: Microcontrollers
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: V
Academic Year	: 2022-23(Odd)
Faculty Name	: Mrs Nisha C Rani

#### **COURSE OBJECTIVE:**

• To explain the internal organization and working of Computers, microcontrollers and embedded processors.

• Compare and contrast the various members of the 8051 family.

• To explain the registers of the 8051 microcontroller, manipulation of data using registers and MOV

instructions.

• To explain in detail the execution of 8051 Assembly language instructions and data types

• To explain loop, conditional and unconditional jump and call, handling and manipulation of I/O instructions.

• To explain different addressing modes of 8051, arithmetic, logic instructions, and programs.

• To explain develop 8051C programs for time delay, I/O operations, I/O bit manipulation, logic,.

#### **COURSE OUTCOME:**

At the end of the course the student will be able to:

• Outline the 8051 architecture, registers, internal memory organization, addressing modes.

• Discuss 8051 addressing modes, instruction set of 8051, accessing data and I/O port programming.

 $\bullet$  Develop 8051C programs for time delay, I/O operations, I/O bit manipulation, logic and arithmetic

operations, data conversion and timer/counter programming.

• Summarize the basics of serial communication and interrupts, also develop 8051 programs for serial

data communication and interrupt programming.

• Program 8051 to work with external devices for ADC, DAC, Stepper motor control, DC motor control,

Elevator control.

#### **PREREQUISITE**(s):

Basics of Microcontroller architecture, computer architecture, basics of C Programming

Unit	Topic No.	Date	Торіс	Period	Text Referred & Page No	Pedagogy
Ι	1	17/10/22	Module1:8051MicrocontrollerBasics-Introduction,Various	2	T1,R1	Chalk & Board

			Processors			
	n	19/10/22	Block Diagram and Internal Memory	2	T1,R1	Chalk & Board
	Z	18/10/22	Organizations	3		
	3	19/10/22	Stack and Addressing Modes	1	T1,R1	Chalk & Board
	4	20/10/22	Register Banks, PSW, Flag bits	2	T1,R1	Chalk & Board
	5	21/10/22	Stack Operations	5	T1,R1	Chalk & Board
	6	25/10/22	I/O Port usage	2	T1,R1	Chalk & Board
	7	27/10/22	Memory decoding - Introduction	2	T1,R1	Chalk & Board
	8	28/10/22	Memory decoding - Examples	5	T1,R1	Chalk & Board
	9	31/10/22	Problems in Memory Decoding	2	T1,R1	Chalk & Board
	10	2/11/22	Problems in Memory Decoding	1	T1,R1	Chalk & Board
	11	3/11/22	Revision	2	T1,R1	Chalk & Board
	12	4/11/22	Revision	5	T1,R1	Chalk & Board
			Module 2: Assembly Programming		T1,R1	Chalk & Board
	13	5/11/22	and Instruction of 8051	3		
			Introduction			
	14	7/11/22	Arithmetic Instructions - With	2	T1,R1	PPT
			Programs		<b>T1 D1</b>	DDT
	15	8/11/22	Logical Instructions - With Programs	3	T I,RI	PP1
	16	9/11/22	Arithmetic Instructions - With	1	11,81	Chalk & Board
	17	10/11/00	Programs	2	T1 D1	Chalk & Board
	17	10/11/22	Logical Instructions - with Programs	2	T1 D1	Chalk & Board
	18	14/11/22	Jump Instructions - With Programs	2	T1 P1	Chalk & Board
11	19	15/11/22	Coll Instructions with Programs	3	T1 R1	Chalk & Board
	20	16/11/22		1	T1 P1	Chalk & Board
	21	21/11/22	Dunning of the Drograms	2	T1 P1	Chalk & Board
	22	22/11/22	Running of the Programs	3	T1 R1	Chalk & Board
	23	23/11/22	Program in Data Transfer	1	T1,R1	Chalk & Board
	24	24/11/22	Programs in Arithmatic Instructions	2	T1,R1	Chalk & Board
	25	23/11/22	Programs in Arithmetic Instructions	<u> </u>	T1,R1	Chalk & Board
	26	20/11/22	Programs in Logical Instructions	2	T1,R1	Chalk & Board
	27	20/11/22	Programs in Logical Instructions	3	T1 P1	
	28	30/11/22	Programming	1	T1 R1	Chalk & Board
тт	29	1/12/22	Modulo 2: 8051 Programming in C	2	T1 R1	Chalk & Board
111	20	2/12/22	Data Types Introduction Time	5	11,11	
	30		delays - with calculations	3		
		3/12/22	I/O Programming Logic Operations		T1 R1	Chalk & Board
	31	3/12/23	in C	1	1 1,111	Chark & Doard
			Data conversion Programs Data		T1.R1	Chalk & Board
	32	5/12/22	serialization	2	- 1,111	Churk & Dourd

	33	6/12/22	Accessing Code ROM space	3	T1,R1	Chalk & Board
	24	7/10/00	8051 Timer Programming:	1	T1,R1	Chalk & Board
	34	//12/22	Introduction	1		
		8/12/22	Counter - Different Modes		T1,R1	Chalk & Board
	35			2		
	36	9/12/22	Counter - Different Modes	5	T1,R1	Chalk & Board
	37	12/12/22	Programming of Counters	2	T1,R1	Chalk & Board
	38	13/12/22	Programming of Counters	3	T1,R1	Chalk & Board
	20	14/12/22	Module 4: Serial Port and	1	T1,R1	Chalk & Board
	39		Interrupt Introduction	1		
	40	15/12/22	Basics of serial communication	2	T1,R1	Chalk & Board
	41	16/12/22	Connections of Serial Port	5	T1,R1	Chalk & Board
	42	17/12/22	Serial Port programming in assembly	2	T1,R1	Chalk & Board
IV	43	19/12/22	Serial Port Programming in C	2	T1,R1	PPT
	44	20/12/22	8051 Interrupts – Introduction	3	T1,R1	PPT
	45	21/12/22	Timer Interrupts, Serial	1	T1,R1	PPT
	45	21/12/22	Communication Interrupts	1		
	46	22/12/22	External Hardware Interrupts	2	T1,R1	Chalk & Board
	47	23/12/22	Interrupt priority,	3	T1,R1	Chalk & Board
	48	27/12/22	Programs in Interrupts	1	T1,R1	Chalk & Board
	49	28/12/22	With external systems user interfacing	2	T1,R1	Chalk & Board
		30/12/22	Serial I/O devices		T1 R1	Chalk & Board
	50	50/12/22	Seriar 1/0 devices	2	1 1,1(1	Chark & Doard
V	<b>5</b> 1	31/12/22	Module 5: Interfacing –		T1,R1	Chalk & Board
v	51		Introduction	3		
	52	1/1/23	Motor Control - DC, Stepper motor	1	-	Chalk & Board
	53	2/1/23	DAC Programming,	2	-	Chalk & Board
	54	3/1/23	ADC Programming,	5	T1,R1	Chalk & Board
	55	4/1/23	8255 Interfacing	2	-	Chalk & Board
	56	5/1/23	Key board interfacing	3	T1,R1	Chalk & Board
	57	6/1/23	LCD interfacing	1	T1,R1	Chalk & Board
	58	9/1/23	Key board interfacing	2	T1,R1	Chalk & Board
	59	10/1/23	LCD interfacing	5	T1,R1	Chalk & Board
	60	11/1/23	Revision	2	T1,R1	Chalk & Board
	61	16/1/23	Revision	3	T1,R1	Chalk & Board
	62	18/1/23	Revision	1	T1,R1	Chalk & Board
	63	19/1/23	Revision	2	T1,R1	Chalk & Board
	64	30/1/23	Revision	5	T1,R1	Chalk & Board
	65	1/2/23	Revision	2	TI,KI TI PI	Chalk & Board
	66 67	2/2/23	Revision	<u> </u>	11,K1 T1 R1	Chalk & Board
1	07	512125	INT VISIOII	1	11,111	Chaik & Dualu

Assignment Topics:

	Sl.No	Торіс	References
	1	Module 1	T3
	2	Module 3	T1
	3	Module 5	T1
SI	INT	ERNAL - 17/11/2022- 19/11/2022	

 $\begin{array}{c} 2^{\text{ND}} & \text{INTERNAL} & -26/11/2022 - 28/12/2022 \\ 3^{\text{RD}} & \text{INTERNAL} & -23/1/2023 - 25/1/2023 \end{array}$ 

Book Type Code			Publication Information		
воок туре	Code	Title & Author	Edition	Publisher	Year
Text Books	T1	The 8051 Microcontroller and embedded systems using Assemble and C, Muhammad Ali Mazadi	2nd Edition	Pearson	2008
	Т2	The 8051 Microcontroller, Kenneth Ayala	3rd Edition	Cengage Learning	2005
	R1	The 8051 Microcontroller and Embedded Systems, Manish K Patel	1st Edition	Mc Graw Hill	2014
Reference Books	R2	Microcontrollers: Architecture, Programming, Interfacing and System Design, Rajkamal	1st Edition	Pearson	2012

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HOD-EXE

#### HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electronics and Communication Engineering

Lesson Plan

Date: 14/10/2022

Subject code/Title	: 18EE53/Power Electronics
Course / Branch	: BE/EEE
Semester	: V
Academic Year	: 2022-23 (ODD)
Faculty Name	: Mrs. Sumitha T L

#### **COURSE OBJECTIVE:**

1. To give an overview of applications power electronics, different types of power semiconductor devices, their switching characteristics, power diode characteristics, types, their operation and the effects of power diodes on RL circuits.

2. To explain the techniques for design and analysis of single phase diode rectifier circuits.

3. To explain different power transistors, their steady state and switching characteristics and limitations.

4. To explain different types of Thyristors, their gate characteristics and gate control requirements.

5. To explain the design, analysis techniques, performance parameters and characteristics of controlled rectifiers and Voltage controllers.

6. To explain the design, analysis techniques, performance parameters and characteristics of DC- DC and DC -AC converters

Module	Topic No.	Date	Торіс	Books Referred & Pages	Pedagogy
	1	17/10/22	Power Diodes and Diode Rectifiers -	T1:1-9, 31-33	Chalk and talk
	2	18/10/22	Applications of power electronics, Peripheral effects	T1:1-2, 24-26	Chalk and talk
	3	19/10/22	Types of Power electronic circuits	T1: 20-23	Chalk and talk
	4	20/10/22	Characteristics and specifications of Switches	T1:16-19	Chalk and talk
	5	25/10/22	Power Diodes - Introduction, Characteristics	T1:33-35	Chalk and talk
т	6	27/10/22	Types of diodes, Freewheeling diode	T1:36-44	Chalk and talk
1	7	31/10/22	Freewheeling diode with RL Load	T1:45-65	Chalk and talk
	8	02/11/22	Diode Rectifiers - Introduction	T1:68-69	Chalk and talk
	9	03/11/22	Diode circuits with DC source connected to R load	T1:69-72	Chalk and talk
	10	07/11/22	Diode circuits with DC source connected to RL load	T1:73-76	Chalk and talk
	11	08/11/22	Single phase full wave rectifier with R Load	T1:77-82	Chalk and talk
	12	09/11/22	Single phase full wave rectifier with RL Load	T1:83-86	Chalk and talk

#### **PREREQUISITE(s):**

- 1. Knowledge about electronics, semiconductor devices and their basic operation
- 2. Knowledge about basic control techniques and controllers

	13	10/11/22	Power Transistors - Introduction	T1: 122-123	Chalk and talk
	14	14/11/22	Power MOSFET structure, operation,	T1:137-141	Chalk and talk
			symbol		
	15	15/11/22	MOSFET - Steady state characteristics	T1:141-142	Chalk and talk
	16	16/11/22	MOSFET - Switching characteristics	T1:142-145	Chalk and talk
	17	17/11/22	Bipolar Junction Transistors – Steady	T1:122-127	Chalk and talk
			State Characteristics		
	18	21/11/22	Bipolar Junction Transistors –	T1:128-134	Chalk and talk
Π			Switching Characteristics		
	19	22/11/22	Switching Limits	T1:135-136	Chalk and talk
	20	23/11/22	IGBT - structure, operation, v-i	T1:147-151	Chalk and talk
			characteristics		
	21	24/11/22	MOSFET Gate Drive, BJT Base Drive	R1: 83-92	Chalk and talk
	22	25/11/22	Isolation of Gate and Base Drive – pulse	R1: 92-98	Chalk and talk
			Transformers, Optocouplers		
	23	28/11/22	Problems on BJT	R1: 98-102	Chalk and talk
	24	29/11/22	Problems on BJT	R1: 103-106	Chalk and talk
	25	30/11/22	Thyristor - Introduction	T1: 304-305	Chalk and talk
	26	01/12/22	PN structure, Equivalent circuit,	T1:305-307	Chalk and talk
			Operation		
	27	05/12/22	Two-Transistor Model of Thyristor	T1:307-309	Chalk and talk
	28	06/12/22	Thyristor Turn- ON and Turn- OFF	T1:309-313	Chalk and talk
			Characteristics		
	29	07/12/22	A brief study on Thyristor Types	T1:314-330	Chalk and talk
Ш	30	08/12/22	Thyristor Types	T1:314-330	Chalk and talk
	31	12/12/22	Series and Parallel operation of	T1:135-136	Chalk and talk
			Thyristors		
	32	13/12/22	di/dt Protection, dv/dt Protection	T1:337-339	Chalk and talk
	33	14/12/22	DIAC - Structure, Equivalent circuit,	R1:137-148	Chalk and talk
			Characteristics	<b></b>	<u></u>
	34	15/12/22	Block diagram for generation of	R1:149-157	Chalk and talk
	25	10/10/00	triggering pulses, types of firing circuits	D1 157 165	
	35	19/12/22	UJI Firing circuit	RI:157-165	Chalk and talk
	36	20/12/22	Controlled Rectifiers and AC voltage	11: 431-432	Chalk and talk
	27	21/12/22	Controllers - Introduction	T1.421.422	<u>Class 11</u> - success 1 do s 11-
	37	21/12/22	Single phase half wave circuit with R	11:431-432	Chalk and talk
	20	22/12/22	Loau Single phase half wave aircuit with DI	T1.422 425	Challs and talls
	30		L ord	11.452-455	Chaik and taik
	30	26/12/22	Single phase half wave circuit with PI	T1.136 138	Chalk and talk
	39	20/12/22	I oad and Freewheeling Diode	11.450-458	Chaik and taik
	40	27/12/22	Single phase half wave circuit with RI F	T1·438-443	Chalk and talk
IV	-10	2//12/22	Load	11.430-443	
	41	28/12/22	Single-Phase Full Converters with RLE	T1·445-453	Chalk and talk
		20/12/22	Load	11,110 100	Chuik und tuik
	42	29/12/22	Single-Phase Dual Converter	T1:453-455	Chalk and talk
	43	02/01/23	Principle of operation of Three- Phase	T1:456-458	Chalk and talk
	-		dual Converters		
	44	03/01/23	Problems on controlled rectifiers	T1:487-492	Chalk and talk
	45	04/01/23	AC Voltage Controllers -Introduction,	T1:500-505	Chalk and talk
			Principle of phase control & Integral		

			cycle control		
	46	05/01/23	Single-Phase Full-Wave Controllers	T1:506-508	Chalk and talk
	47	09/01/23	Single- Phase Full-Wave Controllers	T1: 509-512	Chalk and talk
	10	10/01/02	with Inductive Load	<b>T</b> 1 <i>C</i> 1 <i>A C</i> 1 <i>T</i>	
	48	10/01/23	Three-Phase Full-Wave Controllers	<u>11:514-51/</u>	Chalk and talk
	49	11/01/23	Problems on AC voltage controllers	T1:518-526	Chalk and talk
	50	12/01/23	DC-DC Converters and DC-AC	T1: 166-170	Chalk and talk,
			<b>Converters -</b> Introduction		PPT
	51	16/01/23	Principle of step up and step down	T1:171-180	Chalk and talk,
			chopper with RL load		PPT
	52	17/01/23	Performance parameters	T1:181-182	Chalk and talk,
		10/01/02	1	<b>T1 100 001</b>	PPI
	53	18/01/23	DC-DC converter classification	T1:182-204	Chalk and talk, PPT
N7	54	19/01/23	Problems on DC-DC converters	T1:205-216	Chalk and talk, PPT
V	55	23/01/23	DC-AC Converters: Introduction,	T1:226-235	PPT
			Principle of operation single phase		
			bridge inverters		
	56	24/01/23	Three phase bridge inverters	T1:237-247	PPT
	57	25/01/23	Voltage control of single phase inverters	T1:248-259	PPT
	58	30/01/23	Harmonic reductions	T1:280-284	PPT
	59	31/01/23	Current source Inverters	T1:285-287	PPT
	60	01/02/23	Problems on single phase bridge	T1:289-294	Chalk and talk
			inverters		
	61	02/02/23	VTU QP Discussion	-	-

#### **COURSE OUTCOMES:**

At the end of the course the student will be able to:

1. To give an overview of applications power electronics, different types of power semiconductor devices, their switching characteristics, power diode characteristics, types, their operation and the effects of power diodes on RL circuits.

2. To explain the techniques for design and analysis of single-phase diode rectifier circuits.

3. To explain different power transistors, their steady state and switching characteristics and limitations.

4. To explain different types of Thyristors, their gate characteristics and gate control requirements.

5. To explain the design, analysis techniques, performance parameters and characteristics of controlled rectifiers and DC- DC converters.

6. To explain the design, analysis techniques, performance parameters and characteristics of DC -AC converters and Voltage controllers.

Sl. No.	Assignment Topics	Submission due on
1	Applications of Power Electronics, Switching characteristics of BJT, MOSFET	15/12/22
2	UJT Triggering circuit, Problems based on UJT triggering circuit	10/01/23
3	Problems on Chopper circuits	27/01/23

#### **Assignment Topics**

#### **Text Books:**

T1: Power Electronics: Circuits Devices and Applications - Mohammad H Rashid Pearson, 4th Edition, 2014

#### **Reference Books:**

- R1: Power Electronics P.S. Bimbhra Khanna Publishers 5th Edition, 2012
- R2: Power Electronics: Converters, Applications and Design Ned Mohan et al Wiley 3rd Edition, 2014
- R3: Power Electronics Daniel W Hart McGraw Hill 1 st Edition, 2011
- R4: Elements of Power Electronics Philip T Krein Oxford Indian Edition, 2004



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## THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 DEPARTMENT OF ELECTRICAL AND ELECTRONICS

## Lesson Plan

Date: 13-10-22

Subject code	: 18EE54
Subject Title	: SIGNALS AND SYSTEMS
Course / Branch	: B.E/ EEE
Semester	: V
Academic Year	: 2022-23
Faculty Name	: M.RAICHEL RUBY
Objective of Course	:To study about the basis of signals and system analysis procedures and enable to work a relatively wide range of problems in linear
	systems

#### **Course Objectives:**

- To study about the basis of signals and system analysis procedures and enable to work a relatively wide range of problems in linear systems.
- To study Fourier representation of continuous and discrete time non-periodic signals and the properties of Fourier transform.
- To study the use of Z-Transform in the complex exponential representation of discrete time signals and the analysis of systems.

	Topio			Books	Pedagogy
Unit	No	Date	Planned Topic	Referred &	
	INO.			Pages	
	1.	17.10.22	Definitions of signals & system	1-T1	Chalk & Talk
	2.	18.10.22	Classification of signals	4 -T1	Chalk & Talk
	3.	20.10.22	Problems	5-T1	Chalk & Talk
	4.	21.10.22	problems	7-T1	Chalk & Talk
	5.	21.10.22	Basic operation on signals	32-T1	Chalk & Talk
	6.	22.10.22	problems	35-T1	Chalk & Talk
Ι	7.	25.10.22	Problems	36-T1	Chalk & Talk
	8.	27.10.22	Problems	48-T1	Chalk & Talk
	9.	28.10.22	Interconnection of operations	57-T1	Chalk & Talk
	10.	28.10.22	problems	66-T1	Chalk & Talk
	11.	31.10.22	Problems	66-T1	Chalk & Talk
	12.	03.11.22	Properties of system	68-T1	Chalk & Talk
	13.	04.11.22	problems	70-T1	Chalk & Talk
	14.	04.11.22	Impulse response representation	82-T1	Chalk & Talk
	15.	05.11.22	problems	84-T1	Chalk & Talk
TT	16.	07.11.22	Problems	85-T1	Chalk & Talk
11	17.	08.11.22	Properties of impulse response rep	118-T1	Chalk & Talk
	18.	10.11.22	problems	120-T1	Chalk & Talk
	19.	14.11.22	problems	125-T1	Chalk & Talk
	20.	15.11.22	Difference & differential eqn	135-T1	Chalk & Talk

		17/11/22-		-	-
		19/11/22	I- INTERNAL TEST		
	22.	21.11.22	Problems	150-T1	Chalk & Talk
	23.	22.11.22	Block diagram representation	154-R1	Chalk & Talk
	24.	24.11.22	Continuous time Fourier	180- ,R1	Chalk & Talk
III			Transform (CTFT)		
	25.	25.11.22	Properties of CTFT	181-R1	Chalk & Talk
	26	25.11.22	Problems	187- R1	Chalk & Talk
	27.	26.11.22	Problems	189- R1	Chalk & Talk
	28.	28.11.22	Problems	192-,R1	Chalk & Talk
	29.	29.11.22	Applications of Continuous time	165- R1	Chalk & Talk
			Fourier Transform(CTFT)		
	30.	1.12.22	Problems of CTFT	167- R1	Chalk & Talk
	31.	2.12.22	Frequency and Solutions of	172 <b>-</b> R1	Chalk & Talk
	22	0.10.00	differential equations	170 D1	
	32.	2.12.22	Problems	179-R1	Chalk & Talk
	33.	3.12.22	Introduction to DTFT	218- T2	Chalk & Talk
	34.	5.12.22	Properties of DTFT	219- T2	Chalk & Talk
	35.	6.12.22	Problems	228- T2	Chalk & Talk
	36.	8.12.22	Problems	233- T2	Chalk & Talk
	37.	9.12.22	Problems	235-	Chalk & Talk
	38.	9.12.22	Problems	244- T2	Chalk & Talk
	39.	12.12.22	Discrete time Fourier	193- T2	Chalk & Talk
	10	10.10.00	transform(DTFT)	• • • • •	
	40.	13.12.22	Problems	200-T2	Chalk & Talk
	41.	15.12.22	Problems	<u>194- 12</u>	Chalk & Talk
	42.	16.12.22	Properties of DTFT	205- T2	Chalk & Talk
	43.	16.12.22	Problems	207-12	Chalk & Talk
IV	44.	17.12.22	Problems	217-12	Chalk & Talk
	45.	19.12.22	Frequency response of L11 system	245- T1	Chalk & Talk
	46.	20.12.22	Problems	246- 11 252 TT	Challs & Talk
	47.	22.12.22	Problems	253-11 254 TT	Challs & Talk
	48.	23.12.22	Problems	254-11	
		20/12/22-	II –INTERNAL TEST	-	-
	40	20/12/22	Solution of differential equation	<u> 255 Т1</u>	Chalk & Talk
	49.	29.12.22	using system function	233-11	
	50	30 12 22	Problems	257 <sub>-</sub> T1	Chalk & Talk
	50.	30.12.22	Problems	265- T1	Chalk & Talk
	52	31 12 22	Problems	265- T1	Chalk & Talk
	53	2 01 23	Problems	260 T1 267- T1	Chalk & Talk
	54	3 01 23	Introduction to z-transform	267 T1	Chalk & Talk
	55	5.01.23	Problems	200 T1 270- T1	Chalk & Talk
	56	6.01.23	Problems	284- T1	Chalk & Talk
	57	6.01.23	Properties of z-transform	291- T1	Chalk & Talk
'V	58	10.01.23	Problems	293- T1	Chalk & Talk
	59.	12.01.23	Problems	294- T1	Chalk & Talk
	60	13.01.23	Problems- tutorial class	295- T1	Chalk & Talk
	61.	16.01.23	Inversion of z-transforms	305- T1	Chalk & Talk
	62.	17.01.23	Problems	309- T1	Chalk & Talk
l					

63.	19.01.23	Transform analysis of LTI system	310- T1	Chalk & Talk
64.	20.01.23	Transfer function, stability,	311- T1	Chalk & Talk
	20.01.23	causality		
	23/01/23-	III - INTERNAL TEST	-	-
	25/01/23			
65.	27.01.23	Problems	312- T1	Chalk & Talk
66.	30.01.23	Unilateral z-transform	313- T1	Chalk & Talk
67.	31.01.23	Problems	314- T1	Chalk & Talk
68.	02 02 23	Application to solve difference	316- T1	Chalk & Talk
	02.02.23	equation		

#### **COURSE OUTCOME:**

C354.1 - Basics of signals and system, Classification of signals and system

C354.2 - Basic operations on signals and properties of system

C354.3 - Use convolution in both continuous and discrete domain for the analysis of systems given the impulse response of a system. Provide block diagram representation of LTI system. C354.4 - Use Z-transform and properties of Z-transform for the analysis of discrete time systems.

C354.5 - Apply continuous time Fourier transform representation to study signals and linear time invariant systems

C354.6- Apply Discrete time Fourier transform representation to study signals and linear time invariant systems

#### **Assignment Topics:**

Sl. No.	Assignment Topics	References
1.	Transform analysis of LTI system	R1
2.	Transfer function of z-transform	T1

#### **Text Books:**

T1: Simon Haykin& Barry Veen."signals and system" John Wiley & sons.

T2: Alan v Oppenheim , Alen S HamindNawab"signals& system" pearson education Asia

#### **Reference Books:**

R1 :signals and system UdayaKumar.S R2 :Michel J Roberts."signals& system analysis of signal through linear systems"TataMcgraw Hill



(M.Raichel Ruby) Faculty

(Dr.Bharath V S) HOD / EEE

# HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical and Electronics Engineering

Lesson Plan

Date:15/10/22

Subject code: 18EE55Subject Title: Electrical Machine DesignCourse / Branch: BE/EEESemester: VAcademic Year: 2022-2023-Odd SemFaculty Name: Mrs Resna S R

#### **Course Objectives:**

1.To discuss design factors, limitations in design and modern trends in design and manufacturing of electrical machines.

2. To discuss the properties of electrical, magnetic and insulating materials used in the design of electrical machines.

3. To derive the output equation of DC machine, single phase, three phase transformers, induction motor and synchronous machines.

4. To discuss the selection of specific loadings, for various machines.

5. To discuss separation of main dimensions for different electrical machines

6. To discuss design of field windings for DC machines and synchronous machines.

7. To evaluate the performance parameters of transformer, induction motor.

8. To design of cooling tubes for the transformer for a given temperature rise.

9. To explain design of rotor of squirrel cage rotor and slip ring rotor..

**PREREQUISITE**(s): Basic Principles of Machines

Modu	Tonio			Text	Pedagogy
	No	Date	Торіс	Referred	
le	190.			&Page	
	1	17/10/22	Design of Machines, Design Factors, Limitations	T1:1.1-1.4	PPT
	1	1//10/22	in design		
	2	17/10/22	Modern Trends in design, manufacturing	T1:1.4-1.5	PPT
	2	1//10/22	Techniques.		
	3	18/10/22	Electrical Engineering Materials: Desirabilities of	T1:2.1	PPT
	5	10/10/22	Conducting Materials		
	4	20/10/22	Comparison of Aluminium and Copper wires.	T1:2.2	PPT
т	5	21/10/22	Ferromagnetic Materials	T1:2.10	PPT
1	6	25/10/22	Soft Magnetic materials-Solid Core Materials,	T1:2.11	PPT
	7	7 27/10/22	Electrical Sheet and Strip, Cold Rolled Grain	T1:2.11-	PPT
	/		Oriented Steel. Insulating Materials	2.15	
	8	28/10/22	Desirable Properties	T1:2.17	PPT
	0	31/10/22	Temperature Rise and Insulating Materials	T1:2.17-	PPT
	9	51/10/22		2.19	
	10	3/11/22	Classification of Insulating materials based on	T1:2.19-	PPT
	10		Thermal Consideration	2.20	
	11	4/11/22	Output Equation	T1.0 13	PPT,
	11			11.7.13	Youtube Videos

	10	5/11/22	Choice of Specific Loadings	T1:9.14-	PPT,
	12			9.15	Youtube Videos
	13	7/11/22	Choice of Number of Poles	T1:9.18	PPT,
	13				Youtube Videos
	14	7/11/22	Main Dimensions of armature	T1:9.25-	PPT,
	14			9.27	Youtube Videos
	15	8/11/22	Design of Armature Slot Dimensions	T1:9.43-	PPT,
	15			9.44	Youtube Videos
II	16	10/11/22	Commutator and Brushes	T1:9.88	PPT,
	10				Youtube Videos
		14/11/22	Estimation of Ampere Turns for the Magnetic	T1:9.61	PPT,
	17		Circuit		Youtube Videos
	18	14/11/22	Dimensions of Yoke	T1:9.61	PPT,
	10				Youtube Videos
	10	15/11/22	Main Pole and Air Gap	T1:9.58	PPT,Youtube
	19	13/11/22			Videos
	20	21/11/22	Design of Shunt and Series Field Windings	T1:9.63-	PPT, Youtube
	20			9.65	Videos
	21	21/11/22	Problems	T1:9.65-	PPT
	21			9.71	
	22	22/11/22	Problems	T1:9.85	PPT
	23	24/11/22	Problems	T1:9.86	PPT
	24	25/11/22	Problems	T1.0.97	DDT
	24	23/11/22	Problems	T1.9.07	
	23	28/11/22	Output Equations of Single Dhase and Three Dhase	T1.9.00	PPT Voutubo
	26	20/11/22	Transformers	5 50	Videos
		20/11/22	Output Equations Three Dhase Transformers	J.JU T1:5 50	DDT Voutubo
	27	29/11/22	Supur Equations Three Thase Transformers	11.3.30	Videos
		1/12/22	Choice of Specific Loadings		DDT Voutubo
	28	1/12/22	Choice of Specific Loadings		Videos
		2/12/22	Expression for Volte/Turn	T1.5 50	DDT Voutubo
ш	29	2/12/22		11.5.50	Videos
111		3/12/22	Determination of Main Dimensions of the Core	T1.5 59	DDT Voutubo
	30	5/12/22	Determination of Main Dimensions of the Core	11.5.56	Videos
		3/12/22	Estimation of Number of Turns and Conductor	T1.5 59	PPT Voutube
	31	5/12/22	Cross Sectional area of Primary and Secondary	11.5.57	Videos
	51		Windings		v lucos
		5/12/22	Estimation of Conductor Cross Sectional area of	T1.5 60	PPT Youtube
	32	5/12/22	Primary and Secondary Windings	11.5.00	Videos
		5/12/22	No Load Current	T1.5 98	PPT Youtube
	33	5/12/22		11.5.70	Videos
		6/12/22	Expression for the Leakage Reactance of core type	T1:5.85	PPT. Youtube
	34		transformer with concentric coils, and calculation		Videos
	- •		of Voltage Regulation.		
		8/12/22	Design of Tank and Cooling (Round and	T1:5.105	PPT. Youtube
	35		Rectangular) Tubes		Videos
	36	9/12/22	Problems	T1:5.77	PPT
	-	<sup>_</sup>	1	-	

	37	12/12/22	Problems	T1:5.78	PPT
-	38	12/12/22	Problems	T1:5.79	PPT
	20	13/12/22	Problems	T1:5.80-	PPT
	39			5.81	
	10	15/12/22	Problems	T1:5.81-	PPT
	40			5.84	
	41	16/12/22	Problems	T1:5.112	РРТ
	42	17/12/22	Problems	T1:5.120	PPT
	43	19/12/22	Problems	T1.5.124	PPT
IV	15	19/12/22	Introduction - Three phase Induction motors	T1.3.12	PPT Youtube
1 1	44	17/12/22	introduction Three phase induction motors	10.2	Videos
		20/12/22	Output Equation	T1·10.7	PPT Voutube
	45	20/12/22	Output Equation	11.10.7	Videos
		22/12/22	Choice of Specific Loadings	T1.10.0	DDT Voutubo
	46	22/12/22	Choice of Specific Loadings	11.10.9-	Videos
		22/12/22	Main Dimonsions of States	10.0 T1.10.0	VILLEUS
	47	23/12/22	Main Dimensions of Stator	11:10.9	PP1, Youlube
		20/12/22		<b>T</b> 1 10 10	VIGEOS
	48	29/12/22	Design of stator slots and Winding,	11:10.10	PPT, Youtube
		20/12/22		<b>T</b> 110.10	Videos
	49	30/12/22	Choice of Length Air Gap	1110.19	PPT, Youtube
				<b>T</b> 10 11	Videos
	50	02/01/23	Estimation of Number of Slots for Squirrel Cage	T:10.11	PPT, Youtube
			Rotor		Videos
	51	02/01/23	Design of Rotor Bars and End Ring.	T1:10.28-	PPT, Youtube
				10.29	Videos
	52	03/01/23	Design of Slip Ring rotor	T1:10.34-	PPT, Youtube
				10.35	Videos
	53	05/01/23	Estimation of No Load Current and Leakage	T1:10.41,10	PPT, Youtube
			Reactance	.51	Videos
	54	06/01/23	Problems	T1:10.13	PPT
	55	09/01/23	Problems	T1:10.14	PPT
	56	09/01/23	Problems	T1:10.15	PPT
	57	10/01/23	Problems	T1:10.16	PPT
	58	12/01/23	Problems	T1:10.17	PPT
	50	13/01/23	Output Equation	T1:11.14	PPT, Youtube
	39				Videos
	(0)	14/01/23	Choice of Specific Loadings	T1:11.15	PPT, Youtube
	60				Videos
	(1	16/01/23	Short Circuit Ratio	T1:11.18	PPT, Youtube
	61				Videos
V	(0)	16/01/23	Main Dimensions of Stator	T1:11.15	PPT. Youtube
	62				Videos
	(0)	17/01/23	Design of stator slots and Winding	T1:11.21	PPT. Youtube
	63				Videos
		19/01/23	Design of Salient and non-salient Pole Rotors	T1:11.38	PPT. Youtube
	64	17,01,20			Videos
		20/01/23	Design of non-salient Pole Rotors	T1:11.56	PPT. Youtube
	65	20,01723		11.11.50	Videos
					10003

66	27/01/23	Magnetic Circuit and Field Winding	T1:11.44,11	PPT, Youtube
00			.47	Videos
67	30/01/23	Problems	T1:11.16	PPT
68	30/01/23	Problems	T1:11.17	PPT
69	01/02/23	Revision		
70	03/02/23	Revision		

#### **Outcomes of the Course**:

- Identify and list, limitations, modern trends in design, manufacturing of electrical machines and properties of materials used in the electrical machines. •
- Derive the output equation of DC machine, discuss selection of specific loadings and magnetic circuits of DC machines,
- Design the field windings of DC machine, and design stator and rotor circuits of a DC machine.
- Derive the output equations of transformer, discuss selection of specific loadings, estimate the number of cooling tubes, no load current and leakage reactance of core type transformer.
- Develop the output equation of induction motor, discuss selection of specific loadings and magnetic circuits of induction motor, design stator and rotor circuits of a induction motor.
- Formulate the output equation of alternator, design the field windings of Synchronous machine, discuss short circuit ratio and its effects on performance of synchronous machines, design salient pole and non-salient pole alternators for given & define short circuit ratio and discuss its effect on machine performance..

Assignment Topics.								
Sl.No	Торіс	References						
1	Module 1&2	T1						
2	Module 2&3	T1						
3	Module 4&5	T1						

#### Assignment Topics:

#### **Text Books:**

T1: A course in Electrical Machine, A.K.Sawhney DhanpatRai 6 th Edition, 2013.

#### **Reference Books**:

**R1:** Performance and Design of Alternating Current Machines M.G. Say CBS Publisher 3 rd Edition, 2002.

**R2**: Design Data Handbook A. Sanmugasundaram Et al New Age International 1 st Edition, 2011.

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## THE OXFORD COLLEGE OF ENGINEERING HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 DEPARTMENT OF ELECTRICAL AND ELECTRONICS

### Lesson Plan

Date: 13-10-22

Subject code	: 18EE56
Subject Title	: HIGH VOLTAGE ENGINEERING
Course / Branch	: B.E/ EEE
Semester	: V
Academic Year	: 2022-23
Faculty Name	: Dr B.Devi Vighneshwari
Semester Academic Year Faculty Name	: V : 2022-23 : Dr B.Devi Vighneshwari

#### **Course Objectives:**

- To explain the Fundamentals of Conduction and Breakdown in gases, Breakdown in Liquid dielectrics and Breakdown in Solid dielectrics.
- To explain the generation of high voltages and currents.
- To explain the measurement of high Voltages and currents.
- To explain the over voltage phenomenon and Insulation coordination in Electric power systems.
- To explain the high voltage testing of Electrical apparatus.

Unit	Topic No.	Date	Planned Topic	Books Referred	Pedagogy
	1.	17.10.22	Gases as Insulating Media	T1, R1	Chalk & Talk
	2.	18.10.22	Ionization process	T1, R1	Chalk & Talk
	3.	20 10 22	Townsend's current growth	T1, R1	Chalk & Talk
		20.10.22	equation		
	4.	21.10.22	Streamer theory of breakdown in	T1, R1	Chalk & Talk
			gases		
	5.	21.10.22	Liquids as Insulators	T1, R1	Chalk & Talk
Ι	6.	22.10.22	Break down in solid dielectrics	T1, R1	Chalk & Talk
	7.	25.10.22	Thermal Breakdown	T1, R1	Chalk & Talk
	8.	27.10.22	Intrinsic breakdown	T1, R1	Chalk & Talk
	9.	28.10.22	Electro mechanical breakdown	T1, R1	Chalk & Talk
	10.	28.10.22	Thermal Breakdown	T1, R1	Chalk & Talk
	11.	31.10.22	Numericals	T1, R1	Chalk & Talk
	12.	03.11.22	Numericals	T1, R1	Chalk & Talk
	13.	04.11.22	Numericals	T1, R1	Chalk & Talk
	14.	04.11.22	Current doubler circuit and Multiplier circuit	T1, R1	Chalk & Talk
	15.	05.11.22	Generation of high alternating voltages	T1, R1	Chalk & Talk
Π	16.	07.11.22	Cascade transformers and Resonant transformers	T1, R1	Chalk & Talk
	17.	08.11.22	Generation of Impulse voltages	T1, R1	Chalk & Talk
	18.	10.11.22	Generation of Impulse current	T1, R1	Chalk & Talk
	19.	14.11.22	Marx circuit	T1, R1	Chalk & Talk
	20.	15.11.22	Tripping amd control of Impulse	T1, R1	Chalk & Talk

			generators		
		17/11/22- 19/11/22	Internal I	T1, R1	-
	22.	21.11.22	Tripping amd control of Impulse generators	T1, R1	Chalk & Talk
	23.	22.11.22	Impulse generator with three electrode gap	T1, R1	Chalk & Talk
III	24.	24.11.22	Measurement of high direct current voltages	T1, R1	Chalk & Talk
	25.	25.11.22	High ohmic resistance, potential deviders	T1, R1	Chalk & Talk
	26	25.11.22	Generating voltmeters	T1, R1	Chalk & Talk
	27.	26.11.22	Measurement of high alternating voltages	T1, R1	Chalk & Talk
	28.	28.11.22	Electrostatic voltmeters, shubb frotscue	T1, R1	Chalk & Talk
	29.	29.11.22	Measurement of high currents - AC and DC	T1, R1	Chalk & Talk
	30.	1.12.22	Numericals	T1, R1	Chalk & Talk
	31.	2.12.22	Numericals	T1, R1	Chalk & Talk
	32.	2.12.22	Numericals	T1, R1	Chalk & Talk
IV	33.	3.12.22	Natural causes for over voltages	T1, R1	Chalk & Talk
	34.	5.12.22	Lighning phenomenon	T1, R1	Chalk & Talk
	35.	6.12.22	Over voltages due to switching surges	T1, R1	Chalk & Talk
	36.	8.12.22	System faults	T1, R1	Chalk & Talk
	37.	9.12.22	Other abnormal conditions	T1, R1	Chalk & Talk
	38.	9.12.22	Principles of Insulations coordinations on High voltage	T1, R1	Chalk & Talk
	39.	12.12.22	Extra High Voltage power system	T1, R1	Chalk & Talk
	40.	13.12.22	Numericals	T1, R1	Chalk & Talk
	41.	15.12.22	Numericals	T1, R1	Chalk & Talk
	42.	16.12.22	Numericals	T1, R1	Chalk & Talk
	43.	16.12.22	Numericals	T1, R1	Chalk & Talk
	44.	17.12.22	Natural causes for over voltages	T1, R1	Chalk & Talk
	45.	19.12.22	Lighning phenomenon	T1, R1	Chalk & Talk
	46.	20.12.22	Over voltages due to switching surges	T1, R1	Chalk & Talk
	47.	22.12.22	System faults	T1, R1	Chalk & Talk
	48.	23.12.22	Other abnormal conditions	T1, R1	Chalk & Talk
		26/12/22- 28/12/22	Internal II	T1, R1	-
	49.	29.12.22	Revision	T1, R1	Chalk & Talk
	50.	30.12.22	Numericals	T1, R1	Chalk & Talk
	51.	30.12.22	Numericals	T1, R1	Chalk & Talk
	52.	31.12.22	Numericals	T1, R1	Chalk & Talk
	53.	2.01.23	Class Test	T1, R1	Chalk & Talk
'V	54.	3.01.23	Testing of Insulators	T1, R1	Chalk & Talk
	55.	5.01.23	Testing of Insulators	T1, R1	Chalk & Talk
	56.	6.01.23	Testing of Insulators	T1, R1	Chalk & Talk
	57.	6.01.23	Testing of bushings	T1, R1	Chalk & Talk
	58.	10.01.23	Testing of bushings	T1, R1	Chalk & Talk
	59.	12.01.23	Testing of bushings	T1, R1	Chalk & Talk
	60.	13.01.23	Testing of Isolators	T1, R1	Chalk & Talk
	61.	16.01.23	Testing of circuit breakers	T1, R1	Chalk & Talk
	62.	17.01.23	Testing of Surge arresters	T1, R1	Chalk & Talk
	63.	19.01.23	Radio Interference measurements	T1, R1	Chalk & Talk
	64.	20.01.23	Testing of HVDC Valves and equipments	T1, R1	Chalk & Talk
	23/01/23-	Internal III	T1, R1	-	
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	25/01/23				
65.	27.01.23	Numericals	T1, R1	Chalk & Talk	
66.	30.01.23	Numericals	T1, R1	Chalk & Talk	
67.	31.01.23	Numericals	T1, R1	Chalk & Talk	
68.	02.02.23	Numericals	T1, R1	Chalk & Talk	

### **COURSE OUTCOME:**

- At the end of the course the student will be able to:
- Explain the Conduction and Breakdown phenomenon in gases, liquid dielectrics.
- Explain the Conduction and Breakdown phenomenon in gases, solid dielectrics.
- To discuss the generation of high Voltages and currents.
- To discuss the measurement techniques for high voltages and currents.
- To discuss over voltage phenomenon and Insulation coordination in Electric power system.
- To discuss testing of materials and Electric apparatus and high voltage testing of Electric apparatus.

### **Assignment Topics:**

Sl. No.	Assignment Topics	References
1.	Module 1, 2	T1, R1
2.	Module 2, 3	T1, R1
3	Module 4 & 5	T1, R1

Deels True	Cada		Publication Information			
воок туре	Code	<u>Intle &amp; Author</u>	Edition	Publisher	Year	
Tort Decks	T1	High Voltage Engg - MS Naidu & Kamaraju	5 <sup>™</sup> Edition	Mc Graw Hill	2011	
Text Books	T2	High Voltage Engg - CL Wadhwa	3 <sup>rd</sup> Edition	Mc Graw Hill	2002	
Reference	R1	High Voltage Engg - Kuffel	1st	Shiva Book Centre	2016	
Books	R2	High Voltage Engg - Ray S	1st	<b>RBA</b> Publication	2013	

(Dr.Bharath V S) HOD / EEE

(Dr.B.Devi Vighneshwari) Faculty

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan

Date: 11/9/2023

Subject code: 18EE71Subject Title: Power System Analysis 2Course / Branch: BE (Electrical & Electronics Engineering)Semester: VIIAcademic Year: OCT 2023Faculty Name: Dr.B.Devi Vighneshwari

### **COURSE OBJECTIVE:**

- To explain formulation of network models and bus admittance matrix for solving load flow problems.
- To discuss optimal operation of generators on a bus bar and optimum generation scheduling.
- To explain symmetrical fault analysis and algorithm for short circuit studies.
- To explain formulation of bus impedance matrix for the use in short circuit studies on power systems.
- To explain numerical solution of swing equation for multi-machine stability

### **COURSE OUTCOME:**

- Formulate network matrices and models for solving load flow problems.
- Perform steady state power flow analysis of power systems using numerical iterative techniques.
- Solve issues of economic load dispatch and unit commitment problems.
- Analyze short circuit faults in power system networks using bus impedance matrix.
- Apply Point by Point method and Runge Kutta Method to solve Swing Equation.

Unit	Topic No.	Date	Торіс	Period	Text Referred & Page No	Pedagogy
	1	11/9/23	Network Topology: Introduction and basic definitions of Elementary graph theory	1	T1,R1	Chalk &Board & PPT
	2	12/9/23	Tree, cut-set, loop analysis.	3	T1,R1	Chalk &Board & PPT
I	3	14/9/23	Formation of Incidence Matrices. Primitive network- Impedance form and admittance form	4	T1,R1	Chalk &Board & PPT
	4	15/9/23	Problems on Graph Theory	2	T1,R1	Chalk &Board & PPT
	5	19/9/23	Problems on Graph Theory	1	T1,R1	Chalk &Board & PPT
	6	21/9/23	Tutorials on Graph	3	T1,R1	Chalk &Board

			Theory			& PPT
	7	22/0/22	Ybus by Inspection	4	T1,R1	Chalk &Board
	/	2219125	Method.	4		& PPT
					T1,R1	Chalk &Board
	8	23/9/23	Problems on Inspection	2		&
			Methods			<b>PPT/simulation</b>
					T1,R1	Chalk &Board
	9	29/9/23	Problems on Inspection	1		&
			Methods			<b>PPT/simulation</b>
					T1,R1	Chalk &Board
	10	03/10/23	Tutorials on Inspection	1		&
			Methods			<b>PPT/simulation</b>
		05/10/23			T1,R1	Chalk &Board
	11		Formation of Y Bus by	3		&
			Singular Transformation			<b>PPT/simulation</b>
					T1,R1	Chalk &Board
	12	06/10/23	Problems on singular	2		&
			Transformation Methods			PPT/simulation
		09/10/23			T1,R1	Chalk &Board
II	13		Problems on singular	1		&
			Transformation Methods			PPT/simulation
	14	10/10/23	Tutorials on Singular	3	T1,R1	Chalk &Board
		10/10/25	Transformation Methods	5		& PPT
	15	12/10/23		4	T1,R1	Chalk &Board
			Revision & Class Test	•		& PPT
	16	13/10/23		2	T1,R1	Chalk &Board
		1.6/10/00	Load Flow introduction			& PPT
	17	16/10/23		4	T1,R1	Chalk & Board
	1/		Load flow – Gauss seidal	1		
	-		method – Derivation		T1 D1	PP1/simulation
	10	17/10/00	L d fl Due ble	2	11,K1	
	18	1//10/25	Load How Problem –	3		& DDT/simulation
			L and flow Droblem		T1 D1	Challe & Doord
	10	10/10/22	Load How Problem –	4	11,K1	
	19	19/10/25	Numericals	4		& DDT/simulation
		20/10/22	Load flow Droblem		T1 D1	Challe & Doord
	20	20/10/25	with only PO bus	2	11,K1	
	20		Numericals	Z		a DDT/simulation
			Numericais		T1 D1	Chalk & Roard
	21	26/10/23	Class Test / Tutorials	3	11,111	& PPT
					T1 R1	Chalk & Board
	2.2	27/10/23	Load flow problem – with	4		&
			PO & PV bus			PPT/simulation
			Load flow problem – with		T1.R1	Chalk & Board
	23	30/10/23	PO & PV bus -	2	,	&
			Numericals	_		PPT/simulation
			Load flow problem – with		T1.R1	Chalk &Board
	24	31/10/23	PQ & PV bus -	1	,	&

			Numericals			PPT/simulation
	25	02/11/23		2	T1,R1	Chalk &Board
	25		Class Test / Tutorials	3		& PPT
					T1.R1	Chalk &Board
	26	03/11/23	Load flow problem – with	4	,	&
		00,11,20	limits	·		PPT/simulation
		06/11/23			T1 R1	Chalk & Board
	27	00,11,23	I oad flow problem – with	2	1 1,111	&
	21		limits- Numericals	2		PPT/simulation
		07/11/23	mints- Numericais		T1 D1	Chalk & Board
	28	0//11/23	Load flow problem with	2	11,111	
	20		Load now problem – with	5		a DDT/simulation
		00/11/22	mints- Numericais		T1 D1	Challe 9 Deard
	29	09/11/23		4	11,K1	
			Revision & Class Test			& PPT
	•		Load flow studies:	•	T1,R1	Chalk & Board
	30	10/11/23	Newton Raphson Method	2		&
			– Derivation			PPT/simulation
					T1,R1	Chalk &Board
	31	13/11/23	Newton Raphson Method	4		&
			– Algorithm			<b>PPT/simulation</b>
		16/11/23			T1,R1	Chalk &Board
	32		Newton Raphson Method	3		&
			– Flowchart			<b>PPT/simulation</b>
		17/11/23			T1,R1	Chalk &Board
	33		Newton Raphson Method	4		&
			– Problems			<b>PPT/simulation</b>
					T1,R1	Chalk &Board
	34	23/11/23	Newton Raphson Method	2		&
			– Problems			<b>PPT/simulation</b>
	25	24/11/23		4	T1,R1	Chalk &Board
III	35		Class test	4		& PPT
		25/11/23			T1.R1	Chalk &Board
	36		Fast Decoupled Method –	2	,	&
			Derivation			PPT/simulation
					T1.R1	Chalk &Board
	37	27/11/23	Fast Decoupled method –	2	,	&
			Algorithm			<b>PPT/simulation</b>
			0		T1.R1	Chalk & Board
	38	28/11/23	Fast Decoupled method –	1	11,111	&
	50	20,11,23	Flowchart	1		PPT/simulation
					T1 R1	Chalk & Board
	30	01/12/23	Fast Decoupled Method	3	11,111	
	39	01/12/23	Problems	5		DDT/simulation
					T1 D1	Chalk & Roard
	40	04/12/22	Fast Decoupled Method	C	11,11	
	40	04/12/23	Problems	L		DDT/cimulation
					T1 D1	Challs P-D 1
	4.1	05/10/02	East Decoupled Mathe	1	11,K1	
	41	03/12/23	rast Decoupled Method –	1		
			Problems			PP1/simulation

	40	07/10/02	Comparison of Load flow	2	T1,R1	Chalk &Board
	42	0//12/23	methods	3		& PPT
	42	00/10/02	Optimal System	4	T1,R1	Chalk &Board
	43	08/12/23	Operation: Introduction	4		& PPT
		11/12/23			T1.R1	Chalk &Board
	44		Economic Operation-	2	,	&
			neglecting the losses			PPT/simulation
			Problems on economic		T1 R1	Chalk & Board
IV	45	12/12/23	operation by neglecting	1	1 1,111	&
	15	12/12/23	losses	1		PPT/simulation
		13/12/23	Problems on economic		T1 R1	Chalk & Board
	46	13/12/23	operation by neglecting	1	11,111	&
	10		losses	1		PPT/simulation
			105505		T1 R1	Chalk & Board
	17	13/12/23	Derivation of	3	11,111	
	/	13/12/23	Transmission Losses	5		DPT/simulation
		15/12/23			T1 D1	Chalk & Board
	10	13/12/23	<b>Problems</b> on	1	11,11	
	40		Transmission losses	4		a DDT/simulation
					T1 D1	Chally & Deard
	40	10/10/00	Ducklaure on	2	11,K1	
	49	16/12/25	Transmission lasses	2		& DDT/simulation
		10/12/22			T1 D1	Challe 9 Decend
	50	19/12/23	E O	1	11,K1	
	50		Economic Operation	1		
			Including the losses			Challe & Deard
	51	01/10/00	Problems on economic	2	<b>T</b> 2	
	51	21/12/23	operation including the	3	12	
			Iosses		<b>T</b> 2	PP1/simulation
	50	22/12/22	Problems on economic	4	12	Chalk & Board
<b>X</b> 7	52	22/12/23	operation including the	4		
v			losses			PP1/simulation
	53	26/12/23	Optimal unit	2	12	Chalk & Board
			commitment			
	54	30/12/23		3	12	Chalk & Board
			Problems			
	55	01/01/24	Symmetrical Fault	1	T2	Chalk & Board
		00/01/01	Analysis: Introduction			& PPT
	50	02/01/24		1	12	Chalk & Board
	56			1		
		04/01/04	Zbus formation			PP1/simulation
		04/01/24			T2	Chalk & Board
	57		Zbus formation	3		&
			1 1 1 1			
		0.5.10.1.1	derivation			PP1/simulation
		05/01/24	derivation		T2	Chalk &Board
	58	05/01/24	derivation Problems on Z bus	4	T2	Chalk &Board &
	58	05/01/24	derivation Problems on Z bus formation	4	T2	Chalk &Board & PPT/simulation
	58	05/01/24	derivation Problems on Z bus formation	4	T2 T2	PPT/simulation Chalk &Board & PPT/simulation Chalk &Board
	58	05/01/24	derivation Problems on Z bus formation Problems on Z bus	4	T2 T2	PPT/simulation Chalk &Board & PPT/simulation Chalk &Board &

	Assignm	ent Topics:					
	Sl.No		Topic		Refe	erences	
	1 Assignment Module 1, 2					T1	
	2 Assignment Module 4					T1	
	3 Assignment Module 5					T2	
$1^{ST}$	Γ INTE	RNAL - 16/2	10/2023 - 18/10/2023		L. L		
$2^{NI}$	d INTE	RNAL - 20/1	1/2023 - 22/11/2023				
3 <sup>RI</sup>	D INTE	RNAL - 27/1	2/2023 - 29/12/2023				
D	al T-ma	Cada		Publication Information			
B(	ок туре	Code	Title & Author	Edition	Publisher	Year	
			Modern Power System	4th	Tata	2011	
		<b>T1</b>	Analysis by D.P.Kothari	Edition	Mcgraw hill	2011	
Те	xt Books		Computer Methods in	1 st	Scientific		
		Т2	Power System Analysis by	I <sup>st</sup> Edition	International	2019	
			Glen W Stagg	Edition	Pvt Ltd		
			Computer Techniques in	2nd	MC Graw		
De	formance	R1	Power System Analysis by	<sup>2</sup> Edition	Hill	2012	
Re			M A Pai	Luition	11111		
DU	UNS		Power system Analysis by	$2^{nd}$	Tata	2002	
		R2	Hadi sadat	Edition	Mcgraw hill	2002	



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(Dr.B.Devi Vighneshwari) Faculty

(Dr.Bharath V S) HOD / EEE С

# THE OXFORD COLLEGE OF ENGINEERING

# HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan

Date: 11/9/2023

Subject code	: 18EE72
Subject Title	: Power System Protection
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: VII
Academic Year	: OCT 2023
Faculty Name	: Jayakumar N
COUDCE OD IECT	

### **COURSE OBJECTIVE:**

- To discuss performance of protective relays, components of protection scheme and relay terminology.
- To explain relay construction and operating principles.
- To explain Over current protection using electromagnetic and static relays and Over current protective schemes.
- To discuss types of electromagnetic and static distance relays, effect of arc resistance, power swings, line length and source impedance on performance of distance relays.
- To discuss pilot protection; wire pilot relaying and carrier pilot relaying.
- To discuss construction, operating principles and performance of various differential relays for differential protection.
- To discuss protection of generators, motors, Transformer and Bus Zone Protection.
- To explain the principle of circuit interruption and different types of circuit breakers.
- To describe the construction and operating principle of different types of fuses and to give the definitions of different terminologies related to a fuse.
- To discuss protection Against Over voltages and Gas Insulated Substation (GIS).

### **COURSE OUTCOME:**

At the end of the course the student will be able to:

- Discuss the performance of protective relays, components of protection scheme and relay terminology over current protection.
- Explain the working of distance relays and the effects of arc resistance, power swings, line length and source impedance on the performance of distance relays.
- Discuss pilot protection, construction, operating principles and performance of differential relays
- Discuss protection of generators, motors, transformer and Bus Zone Protection. Explain the construction and operation of different types of circuit breakers.
- Outline features of fuse, causes of over voltages and its protection, also modern trends in Power System Protection.

Unit	Topic No.	Date	Торіс	Period	Text Referred & Page No	Pedagogy
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	1	11/0/22	Introduction to Power	1	T1, R1	Chalk &Board
	1	11/9/23	System Protection	1	·	& PPT
	2	12/0/23		3	T1 – 1-	Chalk &Board
	2	12/9/23	Zones of Protection	5	70	& PPT
			Essential Qualities,			Chalk &Board
	3	14/9/23	Performance of Relaying	4	T1 – 1-	& PPT
			and Classification		70	
	4	15/9/23		2	T1 – 1-	Chalk &Board
		15/7/25	Automatic Reclosing	2	70	& PPT
	5	19/9/23		1	T1 – 1-	Chalk &Board
		177720	CT & PT for Protection	-	70	& PPT
	6	21/9/23		3	T1 – 1-	Chalk &Board
T		21/7/20	Class Test		70	& PPT
-	7	22/9/23	Relay Construction &	4	T1 – 1-	Chalk &Board
			Operating Principle:		70	& PPT
	8	23/9/23	Electromechanical &	2	T1 – 1-	Chalk &Board
	_		Static Relays		70	& PPT
	9	29/9/23		1	T1 – 1-	Chalk & Board
			Over Current Protection:		70	& PPT
	10	03/10/23	Current Setting and Time	1	T1 – 1-	Chalk & Board
		05/10/22	Setting		/0	& PPI
	11	05/10/23	Revision of Module -1	2	TT1 1	Chalk & Board
	11		Question Paper	3	11 - 1 - 70	& PP1
			Discussion		70	Challe & Doord
		0 ( 11 0 10 0		•		Chaik & Dualu
	12	06/10/23	Class Test	2	T1 R1	& PPT
	12	06/10/23	Class Test	2	T1, R1	& PPT Chalk & Board
п	12	06/10/23	Class Test Over Current Protection: Reverse Power or	2	T1, R1	& PPT Chalk &Board & PPT
II	12	06/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay	2	T1, R1 T1 : 84 – 172	& PPT Chalk &Board & PPT
II	12	06/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel	2	T1, R1 T1 : 84 – 172 T1 : 84 –	& PPT Chalk &Board & PPT Chalk &Board
п	12 13 14	06/10/23 09/10/23 10/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains	2 1 3	T1, R1 T1 : 84 – 172 T1 : 84 – 172	& PPT Chalk &Board & PPT Chalk &Board & PPT
П	12 13 14	06/10/23 09/10/23 10/10/23 12/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase	2 1 3	T1, R1 T1 : 84 – 172 T1 : 84 – 172 T1 : 84 –	& PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board
п	12 13 14 15	06/10/23 09/10/23 10/10/23 12/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes	2 1 3 4	T1, R1 T1 : 84 – 172 T1 : 84 – 172 T1 : 84 – 172	& PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT
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Π	12 13 14 15 16	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault	2 1 3 4 2	T1, R1 T1 : 84 – 172 T1 : 84 –	& PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board
Π	12 13 14 15 16 17	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay	2 1 3 4 2 1	T1, R1 T1 : 84 – 172 T1 : 84 – 172 T1 : 84 – 172 T1 : 84 – 172 T1 : 84 – 172	& PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT
Π	12 13 14 15 16 17	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay	2 1 3 4 2 1 3	T1, R1 T1 : 84 – 172 T1 : 84 –	& PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT Chalk &Board & PPT
Π	12 13 14 15 16 17 18	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 17/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test	2 1 3 4 2 1 3	$\begin{array}{c} T1, R1 \\ \\ T1: 84 - \\ 172 \\ \end{array}$	& PPT Chalk & Board & PPT
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Π	12 13 14 15 16 17 18 19	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 17/10/23 19/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction	2 1 3 4 2 1 3 4	$\begin{array}{c} T1, R1 \\ T1: 84 - \\ 172 \\ \end{array}$	& PPT Chalk & Board & PPT
Π	12 13 14 15 16 17 18 19 20	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 19/10/23 20/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction Impedance, Reactance,	$   \begin{array}{c}     2 \\     1 \\     3 \\     4 \\     2 \\     1 \\     3 \\     4 \\     2 \\     1 \\     3 \\     4 \\     2 \\     1 \\     2 \\     1 \\     3 \\     4 \\     2 \\     2 \\     1 \\     3 \\     4 \\     2 \\     2 \\     1 \\     3 \\     4 \\     2 \\     2 \\     1 \\     3 \\     4 \\     2 \\     2 \\     1 \\     3 \\     4 \\     2 \\     2 \\     1 \\     3 \\     4 \\     2 \\     2 \\     2 \\     3 \\     4 \\     2 \\     2 \\     3 \\     4 \\     2 \\     2 \\     3 \\     4 \\     2 \\     2 \\     3 \\     4 \\     2 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     2 \\     3 \\     4 \\     3 \\     3 \\     4 \\     3 \\     3 \\     4 \\     3 \\     3 \\     4 \\     3 \\     3 \\     4 \\     3 \\     5 \\     3 \\     5 \\     $	$\begin{array}{c} T1, R1 \\ \\ T1: 84 - \\ 172 \\ \\ T1: 84 - \\ T1$	& PPTChalk & Board& PPTChalk & Board
Π	12 13 14 15 16 17 18 19 20	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 17/10/23 19/10/23 20/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction Impedance, Reactance, Mho Relay	$ \begin{array}{c} 2 \\ 1 \\ 3 \\ 4 \\ 2 \\ 1 \\ 3 \\ 4 \\ 2 \\ \end{array} $	$\begin{array}{c} T1, R1 \\ \\ T1: 84 - \\ 172 \\ \\ \end{array}$	& PPTChalk & Board& PPT
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Π	12 13 14 15 16 17 18 19 20 21	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 19/10/23 20/10/23 26/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction Impedance, Reactance, Mho Relay	$ \begin{array}{c} 2 \\ 1 \\ 3 \\ 4 \\ 2 \\ 1 \\ 3 \\ 4 \\ 2 \\ 3 \\ \end{array} $	$\begin{array}{c} T1, R1 \\ \\ T1: 84 - \\ 172 \\ \\ T1: 84 - \\ T1:$	& PPT         Chalk & Board         & PPT
Π	12 13 14 15 16 17 18 19 20 21	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 19/10/23 20/10/23 26/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction Impedance, Reactance, Mho Relay Angle impedance relay Effect of Arc resistance,	2 1 3 4 2 1 3 4 2 3	$\begin{array}{c} T1, R1 \\ T1: 84 - \\ 172 \\ T1: 84 \\ T1: $	& PPT Chalk & Board & PPT
Π	12 13 14 15 16 17 18 19 20 21 22	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 19/10/23 20/10/23 26/10/23 27/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction Impedance, Reactance, Mho Relay Angle impedance relay Effect of Arc resistance, Effect of Power Surges,	2 1 3 4 2 1 3 4 2 3 4 2 3 4	$\begin{array}{c} T1, R1 \\ \\ T1: 84 - \\ 172 \\ \\ T1: 84 - \\ T1: 8$	& PPTChalk & Board & PPT
II	12 13 14 15 16 17 18 19 20 21 21 22	06/10/23 09/10/23 10/10/23 12/10/23 13/10/23 16/10/23 19/10/23 20/10/23 26/10/23 27/10/23	Class Test Over Current Protection: Reverse Power or Directional Relay Protection of Parallel feeder, Ring mains Earth fault and Phase fault Protective Schemes Static and Numerical over current Relay Directional Earth fault Relay Class Test Distance Protection: Introduction Impedance, Reactance, Mho Relay Angle impedance relay Effect of Arc resistance, Effect of Power Surges, Effect of Line length	$ \begin{array}{c} 2 \\ 1 \\ 3 \\ 4 \\ 2 \\ 1 \\ 3 \\ 4 \\ 2 \\ 3 \\ 4 \\ 3 \\ 4 \\ 2 \\ 3 \\ 4 \\ 2 \\ 3 \\ 4 \\ 2 \\ 3 \\ 4 \\ 2 \\ 3 \\ 4 \\ 4 \\ 3 \\ 4 \\ 3 \\ 4 \\ 4 \\ 3 \\ 4 \\ 4 \\ 3 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4$	$\begin{array}{c} T1, R1 \\ T1: 84 - \\ 172 \\ T1: 84 + \\ 172 \\ T1: 84 $	& PPT Chalk & Board & PPT

			performance of distance		172	& PPT
			relays			
	24	21/10/22		1	T1:84-	Chalk &Board
	24	31/10/23	Revision of Module -2	1	172	& PPT
	25	02/11/23		2	T1:84-	Chalk &Board
	25		Revision of Module -2	3	172	& PPT
	26	02/11/22	Question Paper	4	T1:84-	Chalk &Board
	20	03/11/23	Discussion	4	172	& PPT
	27	06/11/23		2	T1:84-	Chalk &Board
	21		Class Test	2	172	& PPT
	28	07/11/23	Circuit Breakers:	3	T1:173	Chalk &Board
	20		Introduction	5	- 192	& PPT
		09/11/23	Fault Clearing time, Arc			Chalk &Board
	29		Voltage and Arc	4	T1:173	& PPT
			Interruption		- 192	
	30	10/11/23	Restriking and Recovery	2	T1:173	Chalk &Board
		10/11/20	Voltage	-	- 192	& PPT
	31	13/11/23	Current Chopping,	4	T1:173	Chalk &Board
		1.6/11/20	Capacitive current		- 192	& PPT
	32	16/11/23	Classification of Circuit	3	TI:173	Chalk & Board
		17/11/00	Breakers (CB)		- 192	
	33	1//11/23	Air Dreels Oil CD	4	11:1/3	Chalk & Board
			Air Break, Oli CB		-192	Chally & Deard
	34	23/11/23	Air Plast CP	2	11:1/3	
		24/11/23	All Blast CB		-192 T1 · 173	Chalk & Board
	35	24/11/23	SE6 CB	4	-192	
		25/11/23			$T1 \cdot 173$	Chalk & Board
	36	20/11/20	Vacuum CB	2	- 192	& PPT
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	37	27/11/23	High Voltage Direct	2	T1:173	& PPT
			current CB		- 192	
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	- 38	28/11/23	Testing of CB	1	- 192	& PPT
	20	01/12/22		2	T1:173	Chalk &Board
	39	01/12/23	Revision of Module – 4	3	- 192	& PPT
	40	04/12/23	VTU Question Paper	2	T1:173	Chalk &Board
	0	04/12/23	Discussion	2	- 192	& PPT
	41	05/12/23		1	T1:173	Chalk &Board
		05/12/25	Class Test	-	- 192	& PPT
			Fuses: Introduction,			Chalk &Board
	42	07/12/23	Definitions, Fuse	3	T1:245	& PPT
			characteristics		- 294	
	43	08/12/23	Truess of Fuser	4	11:245	Chaik & Board
		11/10/00	Types of Fuses		-294	Challe & Deard
	44	11/12/23	Applications of Eucos	2	11:243 204	CHAIK & BOARD
			Applications of Fuses		-294 T1 · 245	Challe & Poard
IV	45	12/12/23	Overvoltage: Causes	1	-201	$\mathcal{L}$ DUAL $\mathcal{L}$
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			Lightning phenomenon			
	16	13/12/23	Wave shape and Over	1	T1:245	Chalk &Board
	40		voltage due to lightning	1	- 294	& PPT
	47	12/12/22	Klydonograph and	2	T1:245	Chalk &Board
	47	13/12/23	magnetic link	3	- 294	& PPT
	10	15/12/23		4	T1:245	Chalk &Board
	48		Class Test	4	- 294	& PPT
			Protection of			Chalk &Board
	40	10/10/02	Transmission Lines,	2		& PPT
	49	10/12/23	stations and substations	Ζ	T1:245	
			against Lightning		- 294	
	50	19/12/23	Protection against	1	T1:245	Chalk &Board
	50		travelling waves	1	- 294	& PPT
	51	21/12/23	Insulation Coordination,	3		Chalk &Board
			<b>Basic Impulse Insulation</b>		T1:245	& PPT
			Level		- 294	
	52	22/12/23	Modern Trends in Power			Chalk &Board
			System Protection:	4	T1:245	& PPT
V			Introduction		- 294	
	53	26/12/23	Gas insulated switch gear	2	T1:245	Chalk &Board
	55	20/12/25	substations	2	- 294	& PPT
	54	30/12/23		3	T1:245	Chalk &Board
	54	50/12/25	Class Test	5	- 294	& PPT
	55	01/01/24	Revison of Quesiton	1	T1:245	Chalk &Board
	55		Paper	1	- 294	& PPT
	56	02/01/24	Pilot Relaying Scheme:	1	T1:193	Chalk &Board
	50		Introduction	1	- 244	& PPT
	57	04/01/24	Wire Pilot, Carrier	3	T1:193	Chalk &Board
	57		Current Protection	5	-244	& PPT
	58	05/01/24	Differential Protection:	4	T1:193	Chalk &Board
	50		Introduction		-244	& PPT
	59	06/01/24	Simple, Percentage –	2	T1:193	Chalk &Board
	57		Relays	2	-244	& PPT
	•	· • •				

Assignment Topics:

Sl.No	Topic	References
1	Assignment Module 1, 2	T1
2	Assignment Module 4	T1
3	Assignment Module 5	T1

1<sup>ST</sup> INTERNAL - 16/10/2023 - 18/10/2023

 $\begin{array}{c} 2^{\text{ND}} & \text{INTERNAL} & - 20/11/2023 - 22/11/2023 \\ 3^{\text{RD}} & \text{INTERNAL} & - 27/12/2023 - 29/12/2023 \\ \end{array}$ 

Dool: Type	Code		<b>Publication Information</b>			
воок туре		Title & Author	Edition	Publisher	Year	
Text Books	T1	Power System Protection and Switchgear Badri Ram, D.N. Vishwakarma	4th Edition	McGraw Hill 2nd Edition	2011	

	T2	Power System Protection and Switchgear BhuvaneshOza eta	1 <sup>st</sup> Edition	McGraw Hill	2010
Reference Books	R1	Power Systems - V.K.METHA Power Systems - J.B. Gupta	2 <sup>nd</sup> Edition	Tata Mcgraw hill	2012

North

(Jayakumar N) Faculty

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(Dr.Bharath V S) HOD / EEE

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Department of Electronics and Communication Engineering

Lesson Plan

Date: 05/09/2022

Subject code/Title	: 18EE734/Advanced Control Systems
Course / Branch	: BE/EEE
Semester	: VII
Academic Year	: 2022-23 (ODD)
Faculty Name	: Mrs. Sumitha T L

#### **COURSE OBJECTIVE:**

- To introduce state variable approach for linear time invariant systems in both the continuous and discrete time systems and develop state models for linear continuous time and discrete time systems.
- To explain application of vector and matrix algebra to find the solution of state equations for linear continuous time and discrete time systems.
- To define controllability and observability of a system and testing techniques for controllability and observability of a given system.
- To explain design techniques of pole assignment and state observer using state feedback.
- To explain about inherent and intentional nonlinearities that can occur in control system and developing the describing function for the nonlinearities.
- To explain stability analysis of nonlinear systems using describing function analysis, Lyapunov function and design of Lyapunov function for stable systems.

#### **PREREQUISITE(s):**

- 1. Knowledge about transfer function of a system, knowledge about matrix computation.
- 2. Knowledge about linear, non-linear systems, continuous, discrete systems and stability.

Module	Topic No.	Date	Торіс	Books Referred & Pages	Pedagogy
	1	12/09/22	<b>State Variable Analysis and Design:</b> Introduction	T1:448-449	Chalk and Talk
	2	14/09/22	Concept of State, State Variables and State Model	T1:449-455	Chalk and Talk
	3	14/09/22	State Models for Linear Continuous–Time Systems	T1:456-459	Chalk and Talk
	4	15/09/22	State Variables for Linear Continuous–Time Systems	T1:459-460	Chalk and Talk
	5	16/09/22	State Model for Linear Discrete– Time Systems	T1:511-523	Chalk and Talk
Ι	6	19/09/22	State Variables for Linear Discrete––Time Systems	T1:511-523	Chalk and Talk
	7	21/09/22	Problems on Linear Continuous–Time Systems	T1:464-466	Chalk and Talk
	8	21/09/22	Problems on Linear Continuous–Time Systems	T1:467-469	Chalk and Talk
	9	22/09/22	Problems on Linear Discrete – Time Systems	T1:511-523	Chalk and Talk
	10	23/09/22	Problems on linear Discrete – Time Systems	T1:511-523	Chalk and Talk
	11	26/09/22	State Transition matrix, Problems	T1:449-455	Chalk and Talk
	12	28/09/22	Canonical variables	T2:328-347	Chalk and Talk

	13	28/09/22	State Variable Analysis and Design	T2:347-360	Chalk and Talk
			(continued): Diagonalization		
	14	29/09/22	State Equations	T2:360-372	Chalk and Talk
	15	30/09/22	Solution of State Equations	T2:372-383	Chalk and Talk
	16	03/10/22	Concepts of Controllability	T2:384-388	Chalk and Talk
	17	06/10/22	Problems on Controllability – Gilberts	T2:388-398	Chalk and Talk
Π			Approach		
	18	07/10/22	Problems on Controllability – Kalman's	T2:388-398	Chalk and Talk
			approach		
	19	10/10/22	Concents of Observability	T2: 454-	Chalk and Talk
			Concepts of Observability	461	
	20 12/10/2		Problems on Observability	T2: 454-	Chalk and Talk
				461	
	21	12/10/22	Pole Placement Design and State	T2:480-482	Chalk and Talk
			Observers: Introduction		
	22	13/10/22	Stability Improvements by State Feedback	T2:482-486	Chalk and Talk
	23	14/10/22	Necessary and Sufficient Conditions for	T2:486-490	Chalk and Talk
			Arbitrary Pole Placement		
ш	24	17/10/22	Problems on Pole placement	T1:504-507	Chalk and Talk
111	25	19/10/22	State Regulator Design	T1:556-565	Chalk and Talk
	26	19/10/22	Problems on State Regulator Design	T2:490-494	Chalk and Talk
	27	20/10/22	Design of State Observer	T1:566-571	Chalk and Talk
	28	21/10/22	Problems on design of State Observer	T2:494-505	Chalk and Talk
	29	27/10/22	Compensator Design by the Separation	T2:505-511	Chalk and Talk
			Principle		
	30	28/10/22	Non-linear systems Analysis:	R1:Ch4:2-4	Chalk and Talk
			Introduction		
	31	31/10/22	Common Nonlinear System Behaviours	R1:Ch4:4-5	Chalk and Talk
	32	02/11/22	Common Nonlinearities in Control Systems	R1:Ch4:5-9	Chalk and Talk
	33	02/11/22	Describing Functions of Common	R1:Ch4:15-	Chalk and Talk
			Nonlinearities	32	
	34	03/11/22	Describing Functions of Common	R1:Ch4:15-	Chalk and Talk
	25	0.4/1.1/00	Nonlinearities	32	
	35	04/11/22	Describing Functions of Common	R1:Ch4:15-	Chalk and Talk
	26	07/11/00	Nonlinearities	32 D1 CL 4 15	
	30	0//11/22	Stability Analysis by Describing Function	KI:Ch4:15-	Chalk and Talk
	27	00/11/22	Stability Analysis by Describing Function	32 D1.Ch4.15	Challs and Talls
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	28	00/11/22	Wethod	J2 D1.Ch5.22	DDT
	50	09/11/22	Concept of Phase Plane Analysis	25	111
	30	10/11/22		23 P1·Ch5·25	DDT
	39	10/11/22	Construction of Phase Portraits	30	111
	40	14/11/22		R1·Ch5·25-	PPT
	rU	1 1/ 11/ 44	Construction of Phase Portraits	30	
	41	16/11/22		R1·Ch5·4-	РРТ
		10/11/22	System Analysis on the Phase Plane	22	
	42	16/11/22		R1:Ch5:39-	-
	-		Class test	40	
	43	17/11/22	Tutorial class	R1:Ch5:39-	Chalk and Talk
				40	

	44	18/11/22	Non-linear systems Analysis (continued):	T2: 567-	Chalk and Talk,
			Simple Variable Structure Systems	568	PPT
	45	21/11/22	Lyapunov Stability Definitions	T2: 571-	Chalk and Talk,
-				573	PPT
	46 23/11/22		I vonunov Stability Theorems	T2: 573-	Chalk and Talk,
			Lyapunov Stability Theorems	580	PPT
	47	23/11/22	I vanunov Functions for Nonlinear Systems	T2: 581-	Chalk and Talk,
-			Lyapunov Functions for Nonlinear Systems	586	PPT
	48	24/11/22	Lyapunov Functions for Nonlinear Systems	R1:Ch6:13-	Chalk and Talk,
-				18	PPT
	49	25/11/22	Problems on stability-I vanunov method	R1:Ch6:18-	Chalk and Talk,
			Trobenis on stability-Lyapunov method	25	PPT
	50	28/11/22	Problems on stability - I vanunov method	R1:Ch6:18-	Chalk and Talk,
V				25	PPT
	51 30/11/22		Problems on stability- Direct method	R1:Ch6:25-	Chalk and Talk,
			Trobenis on studnity Direct method	30	PPT
	52 30/11/22		Problems on stability -Direct method	R1:Ch6:30-	Chalk and Talk,
		Frobenis on stability -Direct method		37	PPT
	53	01/12/22	Class test	R1:Ch6:41	-
	54	02/12/22	VTU Question paper discussion	T1, R1	Chalk and Talk
	55	05/12/22	VTU Question paper discussion	T1, R1	Chalk and Talk
	56	07/12/22	VTU QP discussion	T1, R1	Chalk and Talk
	57	08/12/22	Revision Module 1	T1, R1	Chalk and Talk
	58	12/12/22	Revision Module 2	T1, R1	Chalk and Talk
	59	14/12/22	Revision Module 3	T1, R1	Chalk and Talk
	60	16/12/22	Revision Module 4	T1, R1	Chalk and Talk
	61	19/12/22	Revision Module 5	T1, R1	Chalk and Talk

### **COURSE OUTCOMES:**

At the end of the course the student will be able to:

1. Discuss state variable approach for linear time invariant systems in both the continuous and discrete time systems and to develop of state models for linear continuous–time and discrete–time systems

2. Apply vector and matrix algebra to find the solution of state equations for linear continuous-time and discrete-time systems

3. Define controllability and observability of a system and test for controllability and observability of a given system

4. Design pole assignment and state observer using state feedback

5. Develop the describing function for the nonlinearity present to assess the stability of the system.

6. Develop Lyapunov function for the stability analysis of nonlinear systems.

#### **Assignment Topics**

Sl. No.	Assignment Topics	Submission due on
1	Problems on State model and state variable representation	15/11/22
2	Problems on state model, solution to state equation, observability	17/12/22
3	Problems on State Feedback controller and stability	26/12/22

#### **Text Books:**

T1: Control Systems Engineering, I.J. Nagarathand, M.Gopal, NewAge, 5th Edition,2007 T2: Digital Control and State Variable Methods: Conventional and Intelligent Control systems, M.Gopal, McGrawHill, 3rd Edition,2008

T3: Modern Control Theory, R. V. Parvatikar, Prism Books Pvt. Ltd. 1st Edition, 2014

#### **Reference Books:**

R1: Advanced Control systems, U A Bakshi, Dr. M V Bakshi



Protessor & BOB/ EEE: The Oxford College of Emog Nommenatrails, risen: Read alempatron-Stitl and

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan

Date: 19/09/2022

Subject code	: 18EE742
Subject Title	: Utilization of Electric Power
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: VII
Academic Year	: SEP 2021 – DEC 2022
Faculty Name	: Mrs Nisha C Rani

### **COURSE OBJECTIVE:**

- To discuss electric heating, air-conditioning and electric welding.
- To explain laws of electrolysis, extraction and refining of metals and electro deposition.
- To explain the terminology of illumination, laws of illumination, construction and working of electric lamps.
- To explain design of interior and exterior lighting systems- illumination levels for various purposes light fittings- factory lighting- flood lighting-street lighting.
- To discuss systems of electric traction, speed time curves and mechanics of train movement.
- To discuss motors used for electric traction and their control.
- To discuss braking of electric motors, traction systems and power supply and other traction systems.

Give awareness of technology of electric and hybrid electric vehicles.

### **COURSE OUTCOME:**

C4742.1- Able to discuss electric heating, air-conditioning and electric welding.

**C4742.2**-To explain laws of electrolysis, extraction and refining of metals and electro deposition, terminology of illumination, laws of illumination, construction and working of electric lamps.

C4742.3- Able to Design interior and exterior lighting systems- illumination levels for factory lighting- flood lighting-street lighting.

C4742.4- To discuss systems of electric traction, speed time curves and mechanics of train movement.

**C4742.5**- Able to Explain the motors used for electric traction and their control and discuss braking of electric motors, traction systems and power supply and other traction systems.

C4742.6- Able to explain the working of electric and hybrid electric vehicles.

### **PREREQUISITE**(s):

Basics of electrical subjects, illumination ,motors, electrolysis

				Death	Text	Pedagogy
Unit	Topic	Date	Tonic	Perio d	Refer	
Omt	No.	Date	Topic	u	Page	
					No	
	1	19/09/22	Module 1 HEATING AND WELDING:	1	T1 R1	Chalk & Board
	I	17/07/22	Introduction	1	11,111	
	2	20/09/22	Electric Heating, Resistance ovens, Radiant	2	T1,R1	Chalk & Board
			Heating		TT1 D1	Challs & Daard
	3	21/09/22	Heating	2	11,K1	
	4	22/09/22	Dielectric Heating Air – Conditioning	1	T1.R1	Chalk & Board
	5	23/09/22	The Arc Furnace. Heating of Buildings	1	T1,R1	Chalk & Board
	6	26/09/22	Electric Welding, Modern Welding Techniques	2	T1,R1	Chalk & Board
	7	07/00/00	Electrolytic electro – metallurgical process,	2	T1,R1	Chalk & Board
	/	27/09/22	Ionization	2		
T	8	28/09/22	Faraday's Laws of Electrolysis,	2	T1,R1	Chalk & Board
I	9	30/09/22	Faraday's Laws of Electrolysis, Definitions	1	T1,R1	Chalk & Board
			Extraction & Refining of Metals Electro		T1.R1	Chalk & Board
	10	3/10/22	Deposition	1	1 1,111	
	-		T T T T T			
	11	6/10/22	Problems	2	T1,R1	Chalk & Board
	12	7/10/22	Assignment 1 discussion	2	T1,R1	Chalk & Board
	13	8/10/22	Vtu question paper discussion	1	T1,R1	Chalk & Board
	15			1	T1 D1	Chalk & Board
	14	10/11/12	Problems	1	11,K1	
	15	11/10/22	Vtu question paper discussion	2	T1,R1	Chalk & Board
	16	13/10/22	Module 2 ILLUMINATION : Introduction	2	T1,R1	Chalk & Board
	17	14/10/22	Introduction, Radiant Energy,	1	T1,R1	Chalk & Board
	18	17/10/22	Definitions, Laws of Illumination,	1	T1,R1	Chalk & Board
	19	18/10/22	Photometry	2	T1,R1	Chalk & Board
	20	19/10/22	Measurement of Mean Spherical Candle Power by	2	T1,R1	Chalk & Board
		20/10/22	Integrating Sphere	1	T1 D1	Chalk & Board
	21	20/10/22	Energy Padiation and luminous Efficiency	1	T1 P1	Chalk & Board
	22	21/10/22	electric Lamps, Cold Cathode Lamp	2	T1 R1	PPT
	23	25/10/22	Lighting Fittings	2	T1 R1	PPT
II		23/10/22	Illumination for Different Purposes, requirements		T1.R1	Chalk & Board
	25	31/10/22	of Good Lighting	1	11,111	
	26	2/11/22	Assignment 2 Discussion	1	T1,R1	Chalk & Board
	27	3/11/22	Basic Problems on Illumination	2	T1,R1	Chalk & Board
	28	4/11/22	Problems on Illumination	2	T1,R1	Chalk & Board
	29	5/11/22	Vtu question paper discussion	1	T1,R1	Chalk & Board
	30	7/11/22	Problems	1	T1,R1	Chalk & Board
	31	8/11/22	Vtu question paper discussion	2	T1,R1	Chalk & Board

III			Module 3 ELECTRIC TRACTION SPEED -		T1,R1	Chalk & Board
	32	9/11/22	TIME CURVES AND MECHANICS OF	2	,	
			TRAIN MOVEMENT.ELECTRIC MOTORS			
-	33	10/11/22	Introduction, Systems of Traction	1	T1,R1	Chalk & Board
-	34	14/11/22	Systems of electric Traction, Speed - Time Curves for Train	1	T1,R1	РРТ
	35	15/11/22	Movement .Mechanics of Train Movement	2	T1.R1	Chalk & Board
-	36	16/11/22	Train Resistance, Adhesive Weight, Coefficient of Adhesion	2	T1,R1	Chalk & Board
-	37	17/11/22	Introduction, Series and Shunt Motors for Traction Services	1	T1,R1	Chalk & Board
-	38	18/11/22	Two Similar Motors (Series Type) are used to drive a Motor Car	1	T1,R1	Chalk & Board
	39	19/11/22	Tractive Effort and Horse Power, AC Series Motor, Three Phase Induction Motor.	2	T1,R1	Chalk & Board
-	40	21/11/22	Introduction, control of DC motors	2	T1,R1	Chalk & Board
	41	22/11/22	Tapped Field Control or Control by Field Weakening	1	T1,R1	Chalk & Board
	42	23/11/22	Multiple unit control, Control of Single, three Phase Motors	1	T1,R1	Chalk & Board
	43	24/11/22	<b>Braking, Electric traction systems and power supply: Introduction</b>	2	T1,R1	Chalk & Board
	44	25/11/22	Regenerative Braking with Three Phase Induction Motors	2	T1,R1	Chalk & Board
	45	28/11/22	Braking with Single Phase Series Motors, Mechanical braking	1	T1,R1	Chalk & Board
	46	29/11/22	Magnetic Track Brake, Electro – Mechanical Drum Brakes	1	T1,R1	Chalk & Board
-	47	30/11/22	System of Electric Traction	2	T1,R1	РРТ
137		1/12/22	AC Electrification, Transmission Lines to Sub -		T1,R1	PPT,Video
1 V	48		Stations, Sub – Stations. Sub – Stations, Feeding and Distribution System of AC Traction ,Feeding and Distribution System for Dc Tramways	2		
-	49	2/12/22	Electrolysis by Currents through Earth, Negative Booster, System of Current Collection, Trolley Wires	1	T1,R1	Chalk & Board
	50	3/12/22	System of Electric Traction	1	T1,R1	PPT
-	51	5/12/22	Trams, trolley buses and diesel – electric traction Tramways, The Trolley – Bus, Diesel Electric Traction	2	T1,R1	Chalk & Board
ŀ	52	6/12/22	Problems	2	T1.R1	Chalk & Board
	53	12/12/22	Module 5 Electric vehicles: Introduction	1	T2	Chalk & Board
-	54	13/12/22	Configurations of Electric Vehicles	1	T2	Chalk & Board
V	55	14/12/22	Performance of Electric Vehicles	2	T2	Chalk & Board
•	56	15/12/22	Tractive Effort in Normal Driving Energy	2	T2	Chalk & Board
ŀ	57	16/12/22	Energy consumption.	1	T2	Chalk & Board

58	17/12/22	Hybrid electric vehicles: Introduction	1	T2	Chalk & Board
59	19/12/22	Concept of Hybrid Electric Drive Trains	2	T2	Chalk & Board
60	20/12/22	Architectures of Hybrid Electric Drive Trains	2	T2	Chalk & Board
61	21/12/22	Vtu question paper discussion	1	T2	Chalk & Board
62	22/12/22	Revision of Module 1,2	1	T2	Chalk & Board
63	23/12/22	Revision of Module 3,4	2	T2	Chalk & Board
64	31/12/22	Revision of Module 5	2	T2	Chalk & Board

Assignment Topics:

	Sl.No	Торіс	References
	1	Assignment Module 1	T1
	2	Assignment Module 3	T1
	3	Assignment Module 5	T2
1 S7	Γ INT	$FRNAI = \frac{27}{10}\frac{2022}{2020} = \frac{20}{10}\frac{10}{2022}$	

- 29/10/2022 022

 $\frac{1^{31}}{2^{\text{ND}}}$  $3^{\text{RD}}$ INTERNAL - 7/12/2022 - 9/12/2022

INTERNAL - 27/1/2022 - 29/1/2022

Dools Tyme	Codo		Publication Information		
воок туре	Code	Title & Author	Edition	Publisher	Year
	T1	A Textbook on Power System Engineering byA. Chakrabarti et al	2nd Edition	Danapat Rai &co	2010
Text Books	T2	Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals Theory, and Design (Chapters 04 and 05 for module 5) by Mehrdad Ehsani et al.	1 <sup>st</sup> Edition	CRC Press	2005
Doforonco	R1	Utilization, Generation and Conservation of Electrical Energy by Sunil S Rao .	1 <sup>st</sup> Edition	Khanna publishers	2011
Reference Books	R2	Utilization of Electric Power and Electric Traction by G.C. Garg	9th Edition	Khanna publishers	2014





HOD/EEE

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical and Electronics Engineering Lesson Plan

Date:13/09/22

Subject code	: 18EE753
Subject Title	: Disasters Management
Course / Branch	: BE/EEE
Semester	: VII-A
Academic Year	: 2022-2023-Odd Sem
Faculty Name	: Mrs Resna S R

#### **Course Objectives:**

- To explain disaster management, its planning, occurrence of cyclones and their hazard potential
- To explain the role of IMD, cyclone prediction and cyclone warning system in India
- To explain the role of different institutions, defence and other services in natural disaster management.
- To explain the role of Central Water Commission in river water sharing, Draught, its assessment and
- draught management plan
- To explain reasons for the occurrence of earth quake, Tsunamis and thunderstorms.

Module	Тор			Text	Pedagogy
	ic Date Topic		Торіс	Book	
	No.			&Ref	
	1	20-09-22	Disaster Management Plan (DMP): - General.	T:5-13	PPT
	2	21-09-22	Cyclones and their Hazard Potential: Classification	T:15-18	PPT
	2		of Low-Pressure Systems		
	3	22-09-22	Statistics of Cyclonic Storms Over Indian Seas	T:27	PPT
Ι	4	23-09-22	Movement of Cyclones in Indian Seas	T:30	PPT
	5	27-09-22	Storm Surges	T:32	PPT
	6	28-09-22	India Meteorological Department and Cyclone	T:39-46	PPT
	0		Warnings in India:		
	7	29-09-22	Hazard Potential of Cyclonic Storms	T:46	PPT
	8	30-09-22	Cyclone Prediction and Dissemination of Warning	T:49	PPT
	9	06-10-22	Dissemination of Cyclone Warnings	T:50	PPT
	10	07-10-22	Cyclone Warning through INSAT	T:51	PPT
II	11	08-10-22	Port Warnings with Day and Night hoisting Sib'Tlals	T:52	PPT
	12	11-10-22	Cyclones Disaster Management – Plan	T:59	PPT
	13	12-10-22	Hazard Potentials Associated with Cyclones	T:62	PPT
	14	13-10-22	Vulnerability Reduction, Early Warning	T:70	PPT
	15	14-10-22	Action Plan for Cyclone Disaster Management.	T:73	PPT
	16	20-10-22	Role of Different Institutions in Natural Disaster	T:83	PPT
	10		Management		

### **PREREQUISITE**(s):

	17	21-10-22	Role of Zilla Parishad	T:85	PPT
	18	22-10-22	Role of PRA Groups	T:88	PPT
	19	25-10-22	Role of NGOs	T:91	PPT
	20	27-10-22	Self Help Groups in Disaster Management	T:91	PPT
	21	28-10-22	Role of Red Cross in Disaster Management.	T:92	PPT
	22	02-11-22	The Role of Defence and other Services in Disaster	T:95	PPT
			Management		
	23	03-11-22	Role of Air Force in Disaster Management	T:98	PPT
	24	04-11-22	Role of Medical and Health Department in Cyclone	T:100	PPT
	24		disaster management		
111	25	05-11-22	National Disaster Response Force(NDRF)	T:102	PPT
	26	08-11-22	Role of Remote Sensing in Disaster Management	T:103	PPT
	27	00 11 22	Role of Broadcast, Educational Media in disaster	T:108	PPT
	21	09-11-22	management.		
	28	10-11-22	Floods: Water Wealth of India	T:113-115	PPT
	29	15-11-22	Definition of Flood	T:116	PPT
	30	16-11-22	Role of Central Water Commission	T:119	PPT
	31	17-11-22	Monsoons	T:120	PPT
	32	18-11-22	Flood Warning Signals and Precautionary Actions	T:128	PPT
	22	19-11-22	Water Purification Technologies in Flood Affected	T:130	PPT
	55		Areas		
	34	22-11-22	Drought: Meteorological Drought	T:133	PPT
	35	29-11-22	Breaks in the Monsoon	T:137	PPT
	36	30-11-22	Drought Management Plan	T:139	PPT
IV	37	1-12-22	Drought Years for Different Met Subdivision of	T:149	PPT
	20	2 12 22	IIIUIa Drought Assassment, Drought Decemeters	T.145 146	DDT
	20	06 12 22	Diought Assessment, Diought Parameters	T.143-140	
	- 39	00-12-22	Microfinance in drought mitigation Drought	T:149 T:150	
	40	07-12-22	Monitoring	1.130	rr I
	41	08-12-22	Drought Research Unit (IMD), Rainwater	T:150-152	PPT
		00.12.22	narvesting.	T 1(1 177	DDT
	42	09-12-22	Earth quakes: Interior Structure of the Earth, Plate Techtonics, Seismcity of India	1:161-1//	PPT
	43	13-12-22	Earthquake Forecast and disaster management	T:184	PPT
	44	14-12-22	Tsunamis, Landslides and Avalanches, Volcanoes	T:187-193	PPT
	45	15-12-22	Hazards associated with Convective Clouds: Climatology of World Thunderstorms	T:197	PPT
	46	16-12-22	Lightning, Some Effects of Electric Shock, Favours and Frownings of Thunderstorms	T:200-205	PPT
	47	20-12-22	Hailstorms, Tornadoes, Watersprouts	T:213	PPT
	48	21-12-22	Dust-Devils, Nowcasting	T:221	РРТ
	/10	22-12-22	Summer Thunderstorms over India	T:222	PPT
V	+2		Cold Worse and Hart Worse Cold We ' L '	T-227	DDT
•	50	23-12-22	Heat Waves in India	1:227	PP I

#### **Outcomes of the Course**:

- Discuss disaster management plan, cyclones and their hazard potential
- Understand the role of IMD and cyclone prediction and cyclone warning system in India
- Understand the role of different institutions defence and other services in natural disaster management.
- Understand the role of Central Water Commission in river water sharing, Draught, its assessment and draught management plan
- Understand occurrence of earth quake, Tsunamis and thunderstorms.

#### Assignment Topics:

Sl.No	Topic	References
1	Module 1&2	Т
2	Module 2&3	Т
3	Module 4&5	Т

#### **Text Books:**

**T1:** Earth and Atmospheric Disasters Management Natural and Man-made , Navale Pandharinath, C. K. Rajan, BS Publications 2009

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HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 Department of Electrical and Electronics Engineering Lesson Plan

Date:13/09/22

Subject code	:18EE753
Subject Title	:Disasters Management
Course / Branch	:BE/EEE
Semester	: VII-B
Academic Year	:2022-2023-OddSem
Faculty Name	:Mrs M.Raichel Ruby
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#### **Course Objectives:**

- To explain disaster management, its planning, occurrence of cyclones and their hazard potential
- To explain the role of IMD, cyclone prediction and cyclone warning system in India
- To explain the role of different institutions, defence and other services in natural disaster management.
- To explain the role of Central Water Commission in river water sharing, Draught, its assessment and draught management plan.
- To explain reasons for the occurrence of earth quake, Tsunamis and thunderstorms.

Module	Topic No.	Date	Торіс	Text Book &Ref	Pedagogy
	1	19-09-22	Disaster Management Plan (DMP): - General.	T:5	PPT / Chalk & Talk
	2	20-09-22	Cyclones and their Hazard Potential: Classification of Low-Pressure Systems	T:15-18	PPT / Chalk & Talk
Ι	3	22-09-22	Statistics of Cyclonic StormsOver Indian Seas	T:27	PPT / Chalk & Talk
	4	23-09-22	Movement of Cyclones in Indian Seas	T:30	PPT / Chalk & Talk
	5	24-09-22	Storm Surges	T:32	PPT / Chalk & Talk
	6	26-09-22	India Meteorological Department and Cyclone Warnings in India:	T:39	PPT / Chalk & Talk
	7	27-09-22	Hazard Potential of Cyclonic Storms	T:46	PPT / Chalk & Talk
	8	29-09-22	Cyclone Prediction and Dissemination of Warning	T:49	PPT / Chalk & Talk
II	9	30-09-22	Dissemination of Cyclone Warnings	T:50	PPT / Chalk & Talk
	10	03-10-22	Cyclone Warning through INSAT	T:51	PPT / Chalk & Talk
	11	06-10-22	Port Warnings with Day and Night hoisting Sib'Tlals	T:52	PPT / Chalk & Talk

### **PREREQUISITE**(s):

	12	07-10-22	Cyclones Disaster Management – Plan	T:59	PPT / Chalk & Talk
	13	08-10-22	Hazard Potentials Associated with Cyclones	T:62	PPT / Chalk & Talk
	14	10-10-22	Vulnerability Reduction, Early Warning	T:70	PPT / Chalk & Talk
	15	11-10-22	Action Plan for Cyclone Disaster Management.	T:73	PPT / Chalk & Talk
	16	13-10-22	Role of Different Institutions in Natural Disaster Management	T:83	PPT / Chalk & Talk
	17	14-10-22	Role of ZillaParishad	T:85	PPT / Chalk & Talk
	18	20-10-22	Role of PRA Groups	T:88	PPT / Chalk & Talk
	19	21-10-22	Role of NGOs	T:91	PPT / Chalk & Talk
	20	22-10-22	Self Help Groups in Disaster Management	T:91	PPT / Chalk & Talk
	21	25-10-22	Role of Red Cross in Disaster Management.	T:92	PPT / Chalk & Talk
III	22	27-10-22	The Role of Defence and other Services in Disaster Management	T:95	PPT / Chalk & Talk
	23	28-10-22	Role of Air Force in Disaster Management	T:98	PPT / Chalk & Talk
	24	31-10-22	Role of Medical and Health Department in Cyclone disaster management	T:100	PPT / Chalk & Talk
	25	03-11-22	National Disaster Response Force(NDRF)	T:102	PPT / Chalk & Talk
	26	04-11-22	Role of Remote Sensing in Disaster Management	T:103	PPT / Chalk & Talk
	27	05-11-22	Role of Broadcast, Educational Media in disaster management.	T:108	PPT / Chalk & Talk
	28	7-11-22	Floods: Water Wealth of India	T:113-115	PPT / Chalk & Talk
	29	08-11-22	Definition of Flood	T:116	PPT / Chalk & Talk
	30	10-11-22	Role of Central Water Commission	T:119	PPT / Chalk & Talk
	31	14-11-22	Monsoons	T:120	PPT / Chalk & Talk
	32	15-11-22	Flood Warning Signals and Precautionary Actions	T:128	PPT / Chalk & Talk
IV	33	17-11-22	Water Purification Technologies in Flood Affected Areas	T:130	PPT / Chalk & Talk
	34	18-11-22	Drought: Meteorological Drought	T:133	PPT / Chalk & Talk
	35	19-11-22	Breaks in the Monsoon	T:137	PPT / Chalk & Talk
	36	21-11-22	Drought Management Plan	T:139	PPT / Chalk & Talk
	37	22-11-22	Drought Years for Different Met Subdivision of India	T:149	PPT / Chalk & Talk

	38	28-11-22	Drought Assessment, Drought Parameters	T:145-146	PPT / Chalk
	50				& Talk
	39	29-11-22	Role of Banking, Insurance	T:149	PPT / Chalk
		01.10.00		<b>T</b> 150	& Talk
	40	01-12-22	Microfinance in drought mitigation, Drought	1:150	PPT / Chalk
			Monitoring		& Talk
	41	02-12-22	Drought Research Unit (IMD), Rainwater harvesting.	T:150-152	PPT / Chalk & Talk
	40	03-12-22	Earth quakes: Interior Structure of the Earth, Plate	T:161-177	PPT / Chalk
	42		Techtonics, Seismcity of India		& Talk
	43	05-12-22	Earthquake Forecast and disaster management	T:184	PPT / Chalk
	15				& Talk
	44	06-12-22	Tsunamis, Landslides and Avalanches, Volcanoes	T:187-193	PPT / Chalk
		09 12 22	Henry de serveriste de seriet de constant de la des	T. 107	& Talk
V	45	08-12-22	Hazards associated with Convective Clouds:	1:197	PPI / Chalk
		00.12.22	Liebtaine Come Effects of Electric Sheel	T.200.202	
	46	09-12-22	Lightning, some Effects of Electric Shock	1:200-205	PPI / Chalk
			Eavours and Frownings of Thunderstorms	T·204-205	PPT / Chalk
	47	12-12-22	r avours and r rownings or r nanderstorms	1.201 205	& Talk
	40	13-12-22	Hailstorms, Tornadoes, Watersprouts	T:213	PPT / Chalk
	48				& Talk
	49	16-12-22	Dust-Devils, Nowcasting	T:221	PPT / Chalk
	77				& Talk
	50	19-12-22	Summer Thunderstorms over India	T:222	PPT / Chalk
		22, 12, 22		т 227	& Talk
	51	22-12-22	Cold waves and Heat Waves - Cold Waves in India	1:227	PPI / Chalk
		23 12 22	Heat Wayes in India	Τ.213	$\alpha$ Talk DDT / Challe
	52	23-12-22		1.213	& Talk
			1		~ ium

#### **Outcomes of the Course**:

- Discuss disaster management plan, cyclones and their hazard potential
- Understand the role of IMD and cyclone prediction and cyclone warning system in India
- Understand the role of different institutions defence and other services in natural disaster management.
- Understand the role of Central Water Commission in river water sharing, Draught, its assessment and draught management plan
- Understand occurrence of earth quake, Tsunamis and thunderstorms.

#### **Assignment Topics**:

Sl.No	Topic	References
1	Module 1&2	Т
2	Module 2&3	Т
3	Module 4&5	Т

### **Text Books:**

**T1:**Earth and Atmospheric Disasters Management Natural and Man-made ,NavalePandharinath, C. K. Rajan,BS Publications 2009

Section

(M.Raichel Ruby) Faculty

(Dr.Bharath V S) HOD / EEE

HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68

Department of Electrical & Electronics Engineering

Lesson Plan

Date: 11/9/2023

Subject code	: 18EEL76
Subject Title	: Power System Simulation Laboratory
Course / Branch	: BE (Electrical & Electronics Engineering)
Semester	: VII
Academic Year	: Oct 2023 – Jan 2024
Faculty Name	: Dr. Devi Vighneshwari
GOUDGE OD IEG	

### **COURSE OBJECTIVE:**

- To assess the performance of medium and long transmission lines.
- To obtain the power angle characteristics of salient and non- salient pole alternator.
- To study transient stability of radial power systems under three phase fault conditions.
- To develop admittance and impedance matrices of interconnected power systems.
- To explain the use of suitable standard software package.
- To solve power flow problem for simple power systems.
- To perform fault studies for simple radial power systems.
- To study optimal generation scheduling problems for thermal power plants.

### **COURSE OUTCOME:**

- Develop a program in suitable package to assess the performance of Transmission lines, Obtain Power Angle Characteristics, Admittance & Impedance Matrix & Bus Currents and Line Flows
- Use suitable package to solve power flow problem for simple power systems, Jacobian, Fault Currents & Optimal Generation
- Develop a program in suitable package to assess the transient stability under three phase fault at different locations in a of radial power systems.

### **PREREQUISITE(s):**

Basic Knowledge about Electrical and Electronics Subjects and Computer science subjects

Unit	Topic No.	Date	Торіс	Period	Text Referred & Page No	Pedagogy
NA	1	12/09/2023	Introduction Class about MATLAB Basics	5,6,7	NA	PPT
	2	2 19/09/2023 Formation for symmetric π /T configuration for Verification of Determination of Efficiency and Regulation			NA	Simulation in Matlab
	3	26/09/2023	Determination of Power Angle Diagrams, Reluctance Power, Excitation, EMF and Regulation for Salient and Non-Salient Pole Synchronous	5,6,7	NA	Simulation in Matlab

		Machines			
4	03/10/2023	Y Bus Formation for Power Systems with and without Mutual Coupling, by Singular transformation	5,6,7	NA	Simulation in Matlab
5	10/10/2023	Y Bus Formation by Inspection	5,6,7	NA	Simulation in Matlab
6	17/10/2023	Y Bus Formation for Power Systems with and with Mutual Coupling, by Singular transformation	5,6,7	NA	Simulation in Matlab
7	31/10/2023	Determination of Bus Currents, Bus Power and Line Flow for a Specified System Voltage	5,6,7	NA	Simulation in Matlab
8	07/11/2023	Economic Operation of Load Flow Studies	5,6,7	NA	Simulation in Mipower
9	28/11/2023	Internal 1	5,6,7	NA	NA
10	05/12/2023	Load Flow Analysis using Gauss Siedel Method, NR Method and Fast Decoupled Method for Both PQ and PV Buses	5,6,7	NA	Simulation in Mipower
11	12/12/2023	Load Flow Analysis using Gauss Siedel Method, NR Method and Fast Decoupled Method for Both PQ and PV Buses	5,6,7	NA	Simulation in Mipower
12 19/12/2023 Fault Analysis MIPOWER		Fault Analysis using MIPOWER	5,6,7	NA	Simulation in Mipower
13	26/12/2023	Internal Exam	5,6,7	NA	Simulation in Mipower
14	02/01/2024	Revision	5,6,7	NA	Simulation in Mipower

(Dr.B.Devi Vighneshwari) Faculty

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(Dr.Bharath V S) HOD / EEE

#### <u>THE OXFORD COLLEGE OF ENGINEERING</u> HOSUR ROAD, BOMMANAHALLI, BANGALORE - 68 <u>Department of Electrical and Electronics Engineering</u>

#### Lesson Plan

	Date:08/09/22
Subject code	: 18EEL77
Subject Title	: RELAY AND HIGH VOLTAGE LAB
Course / Branch	: B.E/EEE
Semester	: VII
Academic Year	: 2022-2023(ODD Sem)
Faculty Name	: Mrs. M.Raichel Ruby
<b>Objective of Course</b>	:
	• To conduct experiments to verify the characteristics of over current, over voltage, under voltage relays both electromagnetic and static type.

• To verify the operation of negative sequence relay.

• To conduct experiments to verify the characteristics of microprocessor based over current, over voltage, under voltage relays and distance relay.

• To conduct experiments on generator, motor and feeder protection.

• To conduct experiments to study the spark over characteristics for both uniform and non-uniform configurations using High AC and DC voltages.

- To measure high AC and DC voltages
- To experimentally measure the breakdown strength of transformer oil.

• To experimentally measure the capacitance of different electrode configuration models using Electrolytic Tank

• To generate standard lightning impulse voltage and determine efficiency, energy of impulse generator and 50% probability flashover voltage for air insulation.

#### • PREREQUISITE : Knowledge in Relays

Experim ent No.	Date	Торіс	pedagogy
1	13/9/22 15/9/22	Over Current Relay: (a)Inverse Definite Minimum Time(IDMT)Non- Directional Characteristics (b) Directional Features (c) IDMT Directional.	Chalk and Talk
2	20/9/22 22/9/22	IDMT Characteristics of Over Voltage or Under Voltage Relay (Solid State or Electromechanical type).	Chalk and Talk
3	27/9/22 29/9/22	Operating Characteristics of Microprocessor Based (Numeric) Over –Current Relay.	Chalk and Talk
4	11/10/22 13/10/22	Operating Characteristics of Microprocessor Based (Numeric) Over/Under Voltage	Chalk and Talk
5	25/10/22 20/10/22	Motor Protection against Faults.	Chalk and Talk
6	08/11/22 03/11/22	Spark Over Characteristics of Air subjected to High Voltage AC with Spark Voltage Corrected to Standard Temperature and Pressure for Uniform [as per IS1876: 2005]and Non-uniform [as per IS2071(Part 1) : 1993] Configurations: Sphere – Sphere, Point –Plane	Chalk and Talk
	15/11/22 10/11/22	I INTERNALS	Chalk and Talk
7	22/11/22 17/11/22	Measurement of Breakdown Strength of Transformer Oil as per IS 1876 :2005	Chalk and Talk
8	29/11/22 01/12/22	Field Mapping using Electrolytic Tank for any one of the following Models: Cable/Capacitor/	Chalk and Talk
9	06/12/22 08/12/22	Measurement of HVAC and HVDC using Standard Spheres as per IS 1876 :2005	Chalk and Talk

10	13/12/22 15/12/22	Spark over characteristics of air subjected to High voltage DC.	Chalk and Talk
11	20/12/22 22/12/22	Transmission Line/ Sphere Gap. (a) Generation of standard lightning impulse voltage and to determine efficiency and energy of impulse generator. (b) To determine 50% probability flashover voltage for air insulation subjected to impulse voltage.	Chalk and Talk
	03/01/23 05/01/23	II INTERNALS	

#### **Course Outcome:**

At the end of the course the student will be able to:

- Verify the characteristics of over current, over voltage, under voltage and negative sequence relay both electromagnetic and static type.
- Verify the characteristics of microprocessor based over current, over voltage, under voltage relays and distance relay.
- Show knowledge of protecting generator, motor and feeders.
- Analyze the spark over characteristics for both uniform and non-uniform configurations using High A and DC voltages.
- Measure high AC and DC voltages and breakdown strength of transformer oil.
- Draw electric field and measure the capacitance of different electrode configuration models.
- Show knowledge of generating standard lightning impulse voltage to determine efficiency, energy of impulse generator and 50% probability flashover voltage for air insulation

#### **Reference Books:**

- 1. High Voltage Engineering by C.L. Wadhwa.
- 2. High Voltage Engineering Fundamentals by John Kuffel, Peter Kuffel

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## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING CALENDAR OF EVENTS FOR EVEN SEMESTER 2022-23 FOR UG BE - 8<sup>TH</sup> SEMESTER

# COMMENCEMENT FROM 13-02-2023 TO 13-05-2023

Sl. No	Month			Day	/S		No. of working days	Activities	
1	Feb	13 (FWD) (Dept meeting)	14	15	16	17	18 (H)	5	<ul> <li>13<sup>TH</sup> – First Working Day</li> <li>13<sup>th</sup> – Dept meeting</li> <li>18<sup>th</sup>-shivarathri</li> </ul>
2	Feb	20	21	22	23	24	25	6	-
3	Feb/Mar	27	28 (Guest Lecture)	1	2	3	4 (H)	5	• 28 <sup>th</sup> – Guest lecture
4	Mar	6	7	8	9	10 (CCM)	11	6	10 <sup>th</sup> – class committee meeting
5	Mar	13	14	15 (CIE1)	16 (CIE1)	17 (CIE1)	18 (H)	5	15 <sup>th</sup> ,16 <sup>th</sup> ,17 <sup>th</sup> – CIE - I
6	Mar	20 (Dept meeting)	21	22 (Result analysis meeting)	23 (H)	24	25 (PTM)	4	<ul> <li>22<sup>nd</sup> -result analysis meeting</li> <li>23<sup>rd</sup> - UGADI</li> <li>25<sup>th</sup> - PTM</li> </ul>
7	Mar/Apr	27	28	29	30	31 (IIC Activity)	1 (H)	5	31 <sup>st</sup> – IIC activity
8	Apr	3 (H)	4 (IIC Activity)	5	6	7 (H)	8 (Project demo)	4	<ul> <li>3<sup>RD-</sup>-Mahaveer Jayanthi</li> <li>7<sup>TH</sup> -Good Friday</li> <li>4<sup>th</sup> – IIC activity</li> <li>8<sup>th</sup> – Project demo day</li> </ul>
9	Apr	10	11 (CIE2)	12 (CIE2)	13 (CIE2)	14 (H)	15 (H)	5	<ul> <li>11<sup>th</sup>,12<sup>th</sup>,13<sup>th</sup> -CIE- 2</li> <li>14<sup>th</sup> - Dr. B R Ambedkar Jayanthi</li> </ul>

10	Apr	17	18	19 (Result analysis meeting)	20	21	22 (H)	5	•19 <sup>th</sup> -Result analysis meeting .22 <sup>nd</sup> -Kutub-E- Ramzan
11	Apr	24 (Dept meeting)	25	26	27	28	29 (H)	5	24 <sup>th</sup> -Dept meeting
12	May	1 (H)	2	3	4	5 (CCM)	6	5	• 1 <sup>st</sup> - May Day 5 <sup>th</sup> – class committee meeting
13	May	8 (CIE3)	9 (CIE3)	10 (CIE3)	11	12	13 (LWD)	5	• 8 <sup>TH</sup> – 9 <sup>TH</sup> – 8 <sup>TH</sup> SEM 3 <sup>rd</sup> CIE •13 <sup>th</sup> – last working day

## Activities planned for the even semester 2022 -23

Department Meeting Class committee meeting Expert talk/Guest lecture – IIC Activities Project Demo day CIE Result Analysis Meeting PTM Industrial visit

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## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING CALENDAR OF EVENTS FOR EVEN SEMESTER 2022-23 FOR UG BE - 6<sup>TH</sup> SEMESTER

# COMMENCEMENT FROM 20-03-2023 TO 10-07-2023

Sl. No	Month			Ι		No. of working days	Activities		
1	Mar	20 (FWD) (Dept meeting)	21	22	23 (H)	24	25	4	<ul> <li>20<sup>th</sup> – FWD, Dept meeting</li> <li>23<sup>RD</sup> – UGADI</li> </ul>
2	Mar/Apr	27	28	29	30	31 (Hands on training)	1 (H)	5	31 <sup>st</sup> – Hands on Training
3	Apr	3 (H)	4 (IIC Activity)	5	6	7 (H)	8 (Project demo)	4	3 <sup>RD-</sup> -Mahaveer Jayanthi 7 <sup>TH</sup> -Good Friday 4 <sup>th</sup> – IIC activity 8 <sup>th</sup> – Project demo day
4	Apr	10	11	12	13	14 (H)	15 (H)	5	14 <sup>th</sup> –Ambedkar Jayanthi
5	Apr	17	18	19 (CCM)	20	21	22 (H)	5	19 <sup>th</sup> – class committee meeting 22 <sup>nd</sup> – Kutub-E- Ramzan
6	Apr	24 (CIE-1)	25 (CIE-1)	26 (CIE-1)	27	28	29 (H)	5	• 24 <sup>th</sup> ,25 <sup>th</sup> &26 <sup>th</sup> -CIE-1
7	May	1 (H)	2 (Result analysis meeting)	3	4	5	6	5	1 <sup>st</sup> - May Day 2 <sup>nd</sup> – Result analysis meeting
8	May	8	9	10	11	12	13 (H)	5	
9	May	15	16	17	18	19	20 (Industrial visit)	6	• 20 <sup>th</sup> – Industrial visit

10	May	22	23	24	25 (CCM)	26	27 (H)	5	25 <sup>th</sup> –Class committee meeting
11	May/Jun	29	30	31	1 (CIE-2)	2 (CIE-2)	3 (CIE-2)	6	1 <sup>ST</sup> , 2 <sup>ND</sup> & 3 <sup>RD</sup> – CIE - 2
12	Jun	5 (Dept meeting)	6	7	8 (Result analysis meeting)	9	10 (H)	5	8 <sup>th</sup> – Result analysis meeting
13	Jun	12	13 (Guest Lecture)	14	15	16	17	6	13 <sup>th</sup> – guest lecture
14	Jun	19	20	21	22	23 (IIC activity – Demo)	24 (H)	5	23 <sup>rd</sup> – IIC activity – Demo day
15	Jun	26	27	28	29 (H)	30	1 (Poster presentation)	5	29 <sup>th</sup> – Bakrid 1 <sup>st</sup> – Poster presentation
16	Jun/Jul	3 (CIE-3)	4 (CIE-3)	5 (CIE-3)	6	7	8 (H)	5	3 <sup>rd</sup> , 4 <sup>th</sup> & 5 <sup>th</sup> – CIE - 3
17	Jul	10 (LWD)						1	10 <sup>th</sup> – Last Working Day

## Activities planned for the even semester 2022 -23

Department Meeting Class committee meeting Expert talk/Guest lecture – IIC Activities Demo day/Poster presentation CIE Result Analysis Meeting PTM Industrial visit

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## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING CALENDAR OF EVENTS FOR EVEN SEMESTER 2022-23 FOR UG BE - 4<sup>TH</sup> SEMESTER

# COMMENCEMENT FROM 05-06-2023 TO 16-09-2023

Sl. No	Month			Da		No. of working days	Activities		
1	Jun	5 (FWD) (Dept meeting)	6	7	8	9	10 (H)	5	5 <sup>th</sup> – First Working Day, Dept meeting
2	Jun	12	13	14	15	16	17	6	-
3	Jun	19	20	21	22	23 (IIC activity- Demo)	24 (H)	5	23 <sup>rd</sup> – IIC activity – Demo day
4	Jun	26	27	28	29 (H)	30	1	5	29 <sup>th</sup> - Bakrid
5	Jun/Jul	3	4	5 (CCM)	6	7	8 (H)	5	5 <sup>th</sup> – Class committee meeting
6	Jul	10	11 (CIE 1)	12 (CIE 1)	13 (CIE 1)	14	15 (Industrial visit)	6	11 <sup>th</sup> ,12 <sup>th</sup> ,13 <sup>th</sup> - CIE-1 15 <sup>th</sup> – Industrial visit
7	Jul	17	18 (Result analysis meeting)	19	20	21	22 (H)	5	18 <sup>th</sup> – Result analysis meeting
8	Jul	24	25	26	27 (Guest lecture)	28 (Guest lecture)	29 (H)	5	27 <sup>th</sup> , 28 <sup>th</sup> – Guest Lecture 29 <sup>th</sup> - Last Day of Moharram
9	Jul/Aug	31	1	2 (Expert Talk)	3	4	5 (H)	5	2 <sup>nd</sup> – Expert Talk
10	Aug	7	8	9	10 (CCM)	11	12	6	10 <sup>th</sup> –Class committee meeting

11	Aug	14	15(H)	16 (CIE 2)	17 (CIE2)	18 (CIE 2)	19	5	15 <sup>th</sup> – Independence day 16 <sup>TH</sup> , 17 <sup>TH</sup> & 18 <sup>TH</sup> CIE2 for 4 <sup>th</sup> sem
12	Aug	21	22	23 (Result analysis meeting)	24 (Outreach activity)	25 (Expert talk)	26 (PTM)	6	23 <sup>rd</sup> -Result analysismeeting 24 <sup>th</sup> - outreach activity 25 <sup>th</sup> - Expert talk 26 <sup>th</sup> - PTM
13	Aug	28 (Industrial visit)	29	30	31	1	2 (H)	5	28 <sup>th</sup> – Industrial visit
14	Aug/Sep	4	5	6 (Outreach activity)	7	8	9	6	6 <sup>th</sup> – outreach activity
15	Sep	11 (CIE3)	12 (CIE3)	13 (CIE3)	14	15	16 (LWD) (H)		11 <sup>th</sup> , 12 <sup>th</sup> & 13 <sup>th-</sup> CIE -3 16 <sup>th</sup> – Last working day

## Activities planned for the even semester 2022 -23

Department Meeting Class committee meeting Expert talk/Guest lecture – IIC Activities CIE Result Analysis Meeting Outreach Activities PTM Industrial visit

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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING CALENDAR OF EVENTS FOR ODD SEMESTER 2022-23 FOR UG BE - 7<sup>TH</sup> SEMESTER

## COMMENCEMENT FROM 12-09-2022 TO 31-12-2022

Sl. No	Month			D	ays			No. of working days	Activities
1	Sep	12 (FWD) (Dept meeting)	13	14	15	16	17 (H)	5	<ul> <li>12<sup>TH</sup> – First Working Day</li> <li>12<sup>th</sup> – Dept meeting</li> </ul>
2	Sep	19	20	21	22	23	24	6	-
3	Sep/Oct	26	27	28	29	30	1 (H)	5	-
4	Oct	3	4 (H)	5 (H)	6	7	8	4	4 <sup>th</sup> – Ayudhapooja 5 <sup>th</sup> - Vijayadashmi
5	Oct	10	11	12	13 (CCM)	14	15	5	13 <sup>th</sup> – class committee meeting
6	Oct	17 (CIE -1)	18 (CIE – 1)	19 (CIE-1)	20	21 (Seminar)	22 (PTM)	6	17 <sup>th</sup> ,18 <sup>th</sup> ,19 <sup>th</sup> -CIE - 1 22 <sup>nd</sup> - PTM 21 <sup>st</sup> – Seminar-IIC activity
7	Oct	24 (H)	25	26 (H)	27 (Result analysis meeting)	28	29 (H)	3	24 <sup>th</sup> – Naraka chaturdashi 26 <sup>th</sup> – Ballipadyami/ Deepavali
8	Oct/Nov	31	1 (H)	2	3	4	5	5	1 <sup>st</sup> – Kannada Rajyotsava
9	Nov	7	8	9	10	11 (H)	12 (H)	4	11 <sup>th</sup> - Kanakadasa jayanthi

10	Nov	14	15	16 (Expert talk)	17	18	19	6	16 <sup>th</sup> – Expert talk
11	Nov	21	22	23 (CIE – 2)	24 (CIE - 2)	25 (CIE – 2)	26 (H)	5	23 <sup>rd</sup> ,24 <sup>th</sup> ,25 <sup>th</sup> – CIE - 2
12	Nov/Dec	28	29	30 (Result analysis meeting)	1	2	3 (PTM)	6	30 <sup>th</sup> – Result analysis meeting 3 <sup>rd</sup> - PTM
13	Dec	5	6	7	8	9	10 (H)	5	
14	Dec	12	13	14	15 (CCM)	16	17	6	15 <sup>th</sup> – class committee meeting
15	Dec	19	20	21 (Guest lecture)	22	23	24 (H)	5	21 <sup>st</sup> – Guest lecture
16	Dec	26 (CIE - 3)	27 (CIE – 3)	28 (CIE – 3)	29	30	31 (PTM) (LWD)	6	26 <sup>th</sup> , 27 <sup>th</sup> , 28 <sup>th</sup> – CIE -3 31 <sup>st</sup> – PTM, Last working day

### Activities planned for the Odd semester 2022 -23

Department Meeting Class committee meeting Expert talk/Guest lecture – IIC Activities Project Demo day CIE Result Analysis Meeting PTM Industrial visit

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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING CALENDAR OF EVENTS FOR ODD SEMESTER 2022-23 FOR UG BE - 5<sup>TH</sup> SEMESTER

## COMMENCEMENT FROM 17-10-2022 TO 04-02-2023

Sl. No	Month				Days			No. of working days	Activities
1	Oct	17 (FWD)	18	19	20	21 (Seminar)	22	6	17 <sup>th</sup> – First working day 21 <sup>st</sup> – Seminar- IIC activity
2	Oct	24 (H)	25	26 (H)	27	28	29 (H)	3	24 <sup>th</sup> – Naraka chaturdashi 26 <sup>th</sup> – Ballipadyami/ Deepavali
3	Oct/Nov	31	1 (H)	2	3	4	5	5	1 <sup>st</sup> – Kannada Rajyotsava
4	Nov	7	8	9	10	11 (H)	12 (H)	4	11 <sup>th</sup> - Kanakadasa jayanthi
5	Nov	14	15	16 (Expert talk)	17 (CIE – 1)	18 (CIE – 1)	19 (CIE – 1)	6	16 <sup>th</sup> – Expert talk 17 <sup>th</sup> , 18 <sup>th</sup> , 19 <sup>th</sup> – CIE -1
6	Nov	21	22	23 (Seminar- IIC activity)	24	25 (PTM)	26 (H)	5	23 <sup>rd</sup> -Seminar - IIC activity 25 <sup>th</sup> - PTM
7	Nov/Dec	28	29	30	1	2	3	6	
8	Dec	5	6	7	8 (CCM)	9	10 (H)	5	8 <sup>th</sup> – class committee meeting
9	Dec	12	13	14	15 (Industrial visit)	16	17	6	15 <sup>th</sup> – Industrial visit

10	Dec	19	20	21 (Guest lecture)	22	23	24 (H)	5	21 <sup>st</sup> – Guest lecture
11	Dec	26 (CIE – 2)	27 (CIE – 2)	28 (CIE – 2)	29	30	31 (PTM)	6	26 <sup>th</sup> , 27 <sup>th</sup> , 28 <sup>th</sup> – CIE -2 31 <sup>st</sup> – PTM
12	Jan -23	2	3	4	5 (Result analysis meeting)	6	7 (H)	5	5 <sup>th</sup> – Result analysis meeting
13	Jan -23	9	10	11	12	13	14 (H)	5	14 <sup>th</sup> – Mahara sankranthi
14	Jan -23	16	17	18 (Dept meeting)	19	20	21 (H)	5	18 <sup>th</sup> – Dept meeting
15	Jan -23	23 (CIE – 3)	24 (CIE - 3)	25 (CIE - 3)	26 (H)	27	28 (PTM)	6	23 <sup>rd</sup> , 24 <sup>th</sup> , 25 <sup>th</sup> – CIE-3 26 <sup>th</sup> – Republic day 28 <sup>th</sup> - PTM
16	Feb - 23	30	31	1	2	3 (LWD)		4	3 <sup>rd</sup> – Last working day

### Activities planned for the Odd semester 2022 -23

Department Meeting Class committee meeting Expert talk/Guest lecture – IIC Activities Demo day/Poster presentation CIE Result Analysis Meeting PTM Industrial visit

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### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING CALENDAR OF EVENTS FOR ODD SEMESTER 2022-23 FOR UG BE – 3<sup>rd</sup> SEMESTER

## COMMENCEMENT FROM 31-10-2023 TO 11-02-2023

Sl. No	Month			Da	iys			No. of working days	Activities
1	Oct/Nov	31	1 (H)	2	3	4	5	5	1 <sup>st</sup> – Kannada Rajyotsava
2	Nov	7	8	9	10	11 (H)	12 (H)	4	11 <sup>th</sup> - Kanakadasa jayanthi
3	Nov	14	15	16 (Expert talk)	17	18	19	6	16 <sup>th</sup> – Expert talk
4	Nov	21	22	23 (Seminar- IIC activity)	24	25	26 (H)	5	23 <sup>rd</sup> -Seminar - IIC activity 25 <sup>th</sup> - PTM
5	Nov/Dec	28	29	<b>30</b> (CIE – 1)	1 (CIE – 1)	2 (CIE – 1)	3 (PTM)	6	30 <sup>th</sup> , 1 <sup>st</sup> , 2 <sup>nd</sup> – CIE -1
6	Dec	5	6	7	8	9	10 (H)	5	-
7	Dec	12	13	14	15 (Industrial visit)	16	17	6	15 <sup>th</sup> – Industrial visit
8	Dec	19	20	21 (Guest lecture)	22	23	24 (H)	5	21 <sup>st</sup> – Guest lecture
9	Dec	26	27	28	29	30 (CCM)	31	6	30 <sup>th</sup> – Class committee meeting
10	Jan -23	2	3	4 (CIE-2)	5 (CIE-2)	6 (CIE- 2)	7 (H)	5	4 <sup>th</sup> , 5 <sup>th</sup> , 6 <sup>th</sup> – CIE -2

11	Jan -23	9	10	11	12	13 (PTM)	14 (H)	5	13 <sup>th</sup> - PTM 14 <sup>th</sup> – Mahara sankranthi
12	Jan -23	16 (Result analysis meeting)	17	18	19	20	21 (H)	5	16 <sup>th</sup> – Result analysis meeting
13	Jan -23	23	24	25	26 (H)	27	28	6	26 <sup>th</sup> – Republic day
14	Jan/Feb - 23	30	31	1 (CIE - 3)	2 (CIE - 3)	3 (CIE – 3)	4 (H)	4	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> - CIE-3
15	Feb - 23	6	7	8	9	10	11 (PTM) (LWD)		11 <sup>th</sup> – Last working day

## Activities planned for the Odd semester 2022 -23

Department Meeting Class committee meeting Expert talk/Guest lecture – IIC Activities CIE Result Analysis Meeting Outreach Activities PTM Industrial visit

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# 2<sup>nd</sup> Sem A Section Bulijects and Paculty Name:

CODE	COURSE NAME	FACULTY NAME
22MBA31	Thereast Resource Management (TEM):	Dr. A Salvere (Dr. All
22MB432	Eliterated Managemetri (750)	Dr. Hwish Wills HHi
1200431	Research Notherlanding & IPS (KAIATPR)	Dr. McKattarews (Dr. 1982)
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CORE	COURSE NAME	FACULTY NAME
120464/11	Harristi Regulation Managements (1985)45	Dr. A. Saturn (Dr. 2(1)
22MUATI	Francial Mategories (FM)	DA HANGEN (DA 101)
225(BA3)	Research Mathematics # 1998 (00148-1993)	Dr. M.K.elmorrer (Dr. 505)
21109434	Operations Research (OB)	Dr. Gasini C ( Dr. CC)
1240421	Similagic Management (SM)	Dr.R. Thronta Rama Rolly
13NBA36	Througer ini Brownware (NC)	Prof. Lakshing Scenarity (U.S.

4th Sees Subjects and Faculty Navet:

CODC	FURAECT -	FACILITY
ROBBARMEN	0.84 Management and Internet (2016)	Dr. M.Kallinsvan (Dr. 1987)
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1" Sen A Soution Subjects and Faculty Name:

CODK	SUBJECT	FACULTY
2256RA11	Principles of Management and Organizational Debawiase (PM&OE)	Dr. M Kafaravan (Dr. MK)
2256BA32	Entropymentorskip Development (ED)	Dr. brikands & (E)r SR1
2256BA12	Accesses for Managere (ACM)	Prof. Labolard Samperba (Post 1.8)
225EBA14	Statistics For Managers (SM)	Prof. Lavarya B 5 (Port Little)
2256BA35	Marketing Management (MM)	De.S. Thursha Raini Reddy (Dr.& TR)
2250BA16	Battern Companieston (DC)	Frof. A. Subana (Post. AS)



# I" Sen B Section Subjects and Faculty Name:

CODE	SUBJECT	FACILITY
EIMBATT	Principles of Management and Organizational Behaviour (PM&OII)	Dr. M Kathimyan (Dr. MK)
IIMBA12	Entrepreneurship Development (ED)	Dr. Scikarth II. (Dr.SR)
22MBA13	Airount for Managers (ACM)	Prof. Lokahmi Superitta (Post 1.5)
2256BA34	Statistics for Managers (SM)	Prof. Lavarya B 5 (Post LBS)
22MBA15	Markating Management (MM)	Dr.K. Thataka Karaj Heddy (Dr.K.TR)
2250BA16	Balliness Commercement (In')	Post & Subara (but AS)

J. Som Subjects and Faculty Name:

CODE	SCHIECT	FACULTY
DIMEADER	Emerging Exposential Technologies (EET)	ProC A. Sahana (Prof. AS)
2055BA3H2	Technology & Operational Iteratilies (TOS)	Dr. M Kathiravan (Dr.MK).
385(BAMM383	Service Marketing (SNI)	Prof. A.Sahana (Post. AS)
20100000000	Marketing Research & Analytics (MRA)	Perf. 7 Charafrika Roddy (Pest. PCR)
2050BAF30393	Inventment Management (IM)	Post Lakstoni Superflui (but LS)
28558AF56384	Direct Tusation(DT)	Post Lakation Substition (Post LS)
20048750303	Recruitment & Scientise (ILAS)	De K. Tintskateri Roddy (Dr KTR)
2856BAHB204	FIR Analytics (HRA)	Dr. M Kattinivati (Dr.MK)
26MBA3N307	Internation study (18)	All Faulty members

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