NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF ELECTRICAL AND ELECRONICS ENGINEERING

COURSE PLAN PART I				
Name of the programme and specialization	**M.Tech. – Power Systems**			
Course Title	**Power Conversion Laboratory**			
Course Code	**EE607**		**No. of Credits**	**02**
Course Code of Pre-requisite subject(s)			**-**	**-**
Session	**July 2021**		**Section**	**-**
Name of Faculty	**Dr.P. Srinivasa Rao Nayak**		**Department**	**EEE**
Official Email	**psnayak@nitt.edu**		**Telephone No.**	**7708243070**
Name of Course Coordinator(s)	**-NA-**			
Official E-mail	**-NA-**		**Telephone No.**	**-NA-**
Course Type	✓	**Core course**		**Elective course**

Syllabus (approved in BoS)

- Single phase and three phase-controlled rectifiers
- Single phase Inverter
- Three phase inverters (120 and 180-degree modes of operation)
- DC-DC Converters
- Phase controlled circuits
- DC and AC Circuit Breakers
- Mini Project

COURSE OBJECTIVES

1. To train students with practical knowledge related to various switching devices and their applications related to converter and control circuits.

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO)
Upon completion of the course, the students will be able to	
1. Test and analyses the basic rectifier and inverter circuits	**PO1, PO2, PO3, PO4, PO5, PO6,**

2. Test and analyses the controlled circuits.	**PO7, PO8, PO9, PO10, PO11, PO12, PO13, PO14**

COURSE OVERVIEW

This laboratory course will give a hands-on experience for power electronic circuits and exposure related to simulation of opqwer electronic converters.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	Week 1	Instruction and introduction of the Lab Experiments	Online tools, related software and corresponding videos
2.	Week 2	Simulation of half wave rectifier both single phase and three phases	Online tools, related software and corresponding videos
3.	Week 3, 4	Simulation of full wave rectifier both single phase and three phases	Online tools, related software and corresponding videos
4.	Week 4, 5	Phase shifted full bridge converter & single phase VSI using SPWM techniques (unipolar and bipolar)	Online tools, related software and corresponding videos
5.	Week 6, 7	Buck, Boost and Buck-Boost Converter using MOSFET	Online tools, related software and corresponding videos
6.	Week 8	Phase controlled circuits	Online tools, related software and corresponding videos
7.	Week 9	DC and AC Circuit Breakers	Online tools, related software and corresponding videos
8.	Week 11	Mini project Evaluation	Online tools, related software and corresponding videos

COURSE ASSESSMENT METHODS (shall range from 4 to 6**)**

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage

1.	Internal assessment	Continuation evaluation along with lab classes	-	70
2.	End Semester Assessment **(Examination & Viva Voce)**	Week 12	120 minutes	30

COURSE EXIT SURVEY

- Feedback from the students during class committee meetings
- Anonymous feedback through questionnaire (Mid of the semester and End of the semester) End Semester feedback on course outcome.

COURSE POLICY (including compensation assessment to be specified**)**

1. All students are advised to check their NITT webmail regularly. All the correspondence (schedule of classes/schedule of assessment/ lab material/ any other information regarding course) will be done through their webmail only.
2. The compensation assessment would be conducted at the end of II cycle of experiments.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programme.

ADDITIONAL INFORMATION, IF ANY

- The faculty is available for consultation at times as per the intimation given by the faculty.

- Queries may also be emailed to the faculty directly to **psnayak.nitt.edu**

FOR APPROVAL

Course Faculty _____ **CC- Chairperson** Dr. S. Kayalvizhi **HOD** Approved by HoD

Dr. P. SrinivasaraoNayak