

DEPARTMENT OF CHEMICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech.		
Course Title	APPLIED ELECTRICAL AND ELECTRONICS ENGINEERING		
Course Code	CLPC12	No. of Credits	3
Course Code of Pre/ Co-requisite subject(s)	NONE		
Session	July 2018	Section (if, applicable)	-
Name of Faculty	Dr. M. P. SELVAN	Department	EEE
Email	selvanmp.psect@gmail.com	Telephone No.	9444170638
Name of Course Coordinator(s) (if, applicable)			NA
E-mail	-	Telephone No.	-
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
<p>DC motors - Characteristics - Starting and speed control – Testing - Applications. Transformers: (Single phase only) - equivalent circuit and regulation - losses and efficiency - Testing.</p> <p>Three-phase induction motor - Cage and slip ring motors -torque slip characteristics –starting and speed control of induction motors - single phase induction motors and universal motors. Synchronous motors - starting and applications.</p> <p>Electric drive for general factory, textile mill , cement mill - pump, blowers, hoists, traction etc. - group and individual drives</p> <p>Combinational logic - representation of logic functions – SOP and POS forms K-map representations – minimization using K maps - simplification and implementation of combinational logic – multiplexers and demultiplexers – code converters, adders, subtractors, memory and its types.</p> <p>Microprocessor – Architecture of INTEL 8085 – Instruction set – addressing modes – Basic assembly language programming</p>			
COURSE OBJECTIVES			
<ol style="list-style-type: none"> 1. To provide the key concepts about Transformers, DC and AC motors and thereby able to choose the appropriate drives for various applications. 2. To equip students to understand and apply the basic concepts of Combinational logic circuits and Intel 8085 Microprocessor. 			

COURSE OUTCOMES (CO)	
Course Outcomes	Aligned Programme Outcomes (PO)
Upon completion of the course, the student will be able to	
1. Analyze the performance of DC Motors and Transformers under various operating conditions using their various characteristics.	1, 2, 3, 5, 8, 11, 12
2. Describe different types of AC motors and their characteristics.	1, 2, 3, 5, 8, 9, 11, 12
3. Select appropriate drive for any industrial application.	1, 2, 3, 5, 6, 8, 11, 12
4. Design and analyze combinational logic circuits.	1, 2, 3, 5, 8, 11, 12
5. Understand the architecture and instruction set of 8085	1, 2, 3, 5, 6, 8, 10, 11, 12

COURSE PLAN – PART II			
COURSE OVERVIEW			
<p>The pervasive presence of electrical and electronic appliances/devices in all aspects of engineering design and analysis is one of the manifestations of the engineering revolution that has characterized the second half of 20th century. Every aspect of engineering practice, and even of everyday life, has been affected in some way or another by Electrical and Electronic devices and instruments. Hence any engineering graduate/practicing engineer, from mechanical to chemical, nuclear, civil and biomedical engineering, irrespective of the discipline of study, should have an exposure on the field of Electrical, Electronic and Computer engineering to communicate effectively within the interdisciplinary team in which they are going to work/practice.</p> <p>To align with the above said requirement, this course is designed for Chemical Engineering students in such a way that it covers various starting, control and testing techniques for commonly used electrical motors in various industries. Another part of the course deals with the digital logic circuit design. Finally this course introduces Intel 8085 microprocessor architecture and programming. This entire course mainly focuses on design and operational level concepts mainly needed for industry environment.</p>			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1 09-07-2018 to 13-07-2018 (3 Contact Hours)	Introduction to the course Course plan details Basics of transformers	C&T PPT
2	Week 2 16-07-2018 to 20-07-2018 (3 Contact Hours)	Equivalent Circuit Transformer Losses, Efficiency, Regulation Testing	C&T PPT
3	Week 3 23-07-2018 to 27-07-2018 (3 Contact Hours)	DC Motors : Types and Characteristics	C&T PPT

4	Week 4 30-07-2018 to 03-08-2018 (3 Contact Hours)	DC Motor : Starting and Speed Control	C&T PPT
5	Week 5 06-08-2018 to 10-08-2018 (3 Contact Hours)	DC Motor : Testing and Applications Assessment - 1	C&T PPT
6	Week 6 13-08-2018 to 17-08-2018 (2 Contact Hours)	Three-phase induction motor: Principle and Types	C&T PPT
7	Week 7 20-08-2018 to 24-08-2018 (2 Contact Hours)	Three-phase induction motor: Torque-speed Characteristics	C&T PPT
8	Week 8 27-08-2018 to 31-08-2018 (3 Contact Hours)	Three-phase induction motor: Starting and Speed Control	C&T PPT
9	Week 9 03-09-2018 to 07-09-2018 (2 Contact Hours)	Single-phase induction motors and Universal Motors	C&T PPT
10	Week 10 10-09-2018 to 14-09-2018 (3 Contact Hours)	Synchronous Motor : Starting and Applications	C&T PPT
11	Week 11 17-09-2018 to 21-09-2018 (3 Contact Hours)	Electric Drives for various industrial applications Assessment 2	C&T PPT
12	Week 12 24-09-2018 to 28-09-2018 (3 Contact Hours)	Combinational Logic : Representation of Logic functions, SOP and POS forms Introduction to K-maps	C&T PPT
13	Week 13 01-10-2018 to 05-10-2018 (2 Contact Hours)	Minimization of K-maps and implementation of logic functions	C&T PPT
14	Week 14 08-10-2018 to 12-10-2018 (3 Contact Hours)	Assessment 3 Multiplexer and Demultiplexer,	C&T PPT
15	Week 15 15-10-2018 to 19-10-2018 (3 Contact Hours)	Adders and Subtractors Code Converters and Memory	C&T PPT
16	Week 16 22-10-2018 & 26-10-2018 (3 Contact Hours)	Microprocessor Architecture : 8085 Microprocessor Instruction set and	C&T PPT
17	Week 17 29-10-2018 to 02-11-2018 (3 Contact Hours)	Assembly language programming: 8085 Assessment 4	C&T PPT
18	Week 18 05-11-2018 to 09-11-2018 (1 Contact Hour)	Compensation Assessment	C&T PPT
19	Week 19 12-11-2018 to 16-11-2018 (2 Contact Hours)	Final Assessment	C&T PPT

COURSE ASSESSMENT METHODS (shall range from 4 to 6)				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Objective Type Test 1	Week 5 06-08-2018 to 10-08-2018	45 Minutes	15
2	Objective Type Test 2	Week 11 17-09-2018 to 21-09-2018	45 Minutes	15
3	Group Task	Week 14 08-10-2018 to 12-10-2018		15
4	Objective Type Test 3	Week 17 29-10-2018 to 02-11-2018	45 Minutes	15
CPA	Compensation Assessment	Week 18 05-11-2018 to 09-11-2018	60 Minutes	
5	Final Assessment	Week 19 12-11-2018 to 16-11-2018	120 Minutes	40
<p>COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)</p> <p>Feedback from the students during class committee meetings</p> <p>Feedback through online questionnaire (End of the semester)</p> <p>Institute end semester feedback</p>				
<p>COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)</p>				
<p><u>MODE OF CORRESPONDENCE (email/ phone etc)</u></p> <p>1. All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through their webmail only.</p> <p>2. Queries (if required) to the course teacher shall only be emailed to selvanmp.psect@gmail.com</p>				
<p><u>COMPENSATION ASSESSMENT POLICY</u></p> <p>1. Attending all the assessments are MANDATORY for every student.</p> <p>2. If any student is not able to attend any of the assessments (1, 2 and 4 only) due to genuine reason, student is permitted to attend the compensation assessment (CPA).</p> <p>3. At any case, CPA will not be considered as an improvement test.</p>				

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 programmes.

ADDITIONAL INFORMATION

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

Queries may also be emailed to the Course Coordinator directly at selvanmp.psect@gmail.com

FOR APPROVAL

Course Faculty  10-7-18 CC-Chairperson  HOD  10/7/2018