

Government of Karnataka
Department of Technical Education
Board of Technical Examinations, Bengaluru

Course Title : PROFESSIONAL PRACTICE LAB	Course Code : 15EE65P
Semester : VI	Course Group : Core
Teaching Scheme (L:T:P) : 0:2:4 (in Hours)	Credits : 3 Credits
Type of course : Tutorial + Practical	Total Contact Hours : 78
CIE : 25 Marks	SEE : 50 Marks
Programme: ELECTRICAL AND ELECTRONICS ENGINEERING	

Pre-requisites : Able to learn and get involved in individual, group activities and basic knowledge of working on Computers.

Course Objectives : Personal and professional development of a student through activities such as industry expert lectures, industrial visits, group discussions and seminars etc.

Course Outcomes:

On successful completion of the Course, the student will be able to:

1. Demonstrate the information and data Search in advancements of Electrical and Electronics Engineering.
2. Exposure to industry expert lectures and interaction.
3. Demonstrate interpersonal skills by way of Group discussions in a healthy environment
4. Develop confidence and life skills to handle engineering assignments
5. Understand industrial environment and visit industry

Note: The concerned Course Coordinator will give/ assign/ approve the topic/ subject/ area of the information and data to be searched and prepared through manufacturer's catalogue, websites, magazines, books etc. A HAND WRITTEN or PRINTED report with PPT presentation in a specified format is to be submitted for CIE and SEE examinations.

The following topics are the suggested topics ;(Any ONE for group of 5 students)

1. Electrical materials and their applications
2. Latest trends in industrial Optoelectronic devices/ switches
3. Digital electronics applications in Transmission
4. Digital electronics applications in Electrical Distribution Smart grid
5. Distribution and monitoring of electrical power using Smart grid
6. Latest trends in Electrical Energy management
7. Renewable energy and alternative power sources
8. Latest trends in Power switches and converters
9. Diesel Generators systems
10. Synchronisation of Generators with power grid
11. Utilisation of Electrical power
12. Solar power systems and interfacing to grids
13. Latest trends in Electrical measurements
14. Electrical AC Drives
15. Electrical DC Drives
16. BLDC motors applications in Railway and Metro
17. Satellite communication
18. Mobile communication
19. Wireless networking of PCs/ and systems
20. Failures and Troubleshooting of Transformers
21. Environmental issues in Power plants.
22. ANY other relevant topic

2. Guest Lecture:

To be organized from any ONE of the following areas

12 HRS

Note: The ISTE student chapter/CCTEK/ Institution of Engineers (Student chapter)/ NSS wing/ Student club of polytechnic may be used as platform to conduct this activity.

Experts / Professionals from different field/industries are invited to deliver lectures at least ONE session in a semester. The topics may be selected by the Course Coordinator/industry expert to develop required skills.

At the end of this activity each student has to submit a handwritten report of 2 pages including discussion points for CIE and SEE.

1. Career opportunities
2. Cyber crime
3. Entrepreneurship development
4. Waste management and solutions
5. Medical awareness
6. Use of plastics
7. Computer aided Electrical drafting and design\
8. Trends in Apartment/ Building wiring systems
9. Metro rail systems
10. Developments in Tele communication
11. Recent trends in Mobile communication
12. Financing programs/ schemes from banks
13. Community development schemes
14. Digital India initiatives
15. Rain water harvesting
16. Educational loan schemes
17. Higher education opportunities
18. Pollution control.
19. Non destructive testing
20. Fire Fighting / Safety Precautions and First aid methods
21. Computer Networking and Security
22. Yoga Meditation
23. Aids awareness and health awareness.
24. Operation of electrical substation
25. Power factor improvement
26. Interview facing skills
27. National Skill Development of India scheme
28. Electricity rules and regulations
29. Biotechnology
30. Nanotechnology
31. Programmable logic controllers
32. TQM
33. Internet of Things
34. Cloud computing
35. Robotics
36. ANY other relevant topic

3. Group Discussion (Any One topic)

18 HRS

Note:

1. The concerned Course Coordinator will give/ assign/ approve the topic/ subject/ area of Group discussion for a group of 10 students (2 Groups)
2. The Course co-ordinator will give method and rules to carry out group discussion.
3. Time duration will be decided.
4. An additional faculty of the institute will be invited as Moderator/ Referee/ Supervisor.
5. A HAND WRITTEN or PRINTED brief summary in a specified format is to be submitted for CIE and SEE examinations.
6. Students will obtain signature of the Moderator on their report for this particular activity with his remarks.

The following topics are the suggested topics ;(Any ONE for 2 groups of 5 students each)

1. Conscription should be made compulsory not a choice
2. Public relation of students through service to the society
3. Social responsibilities of students.
4. Polythene bags must be banned!
5. Do we really need smart cities?
6. E – Books or Printed books – what's your choice?
7. Will India really be the superpower of 21st century?
8. Managerial skills learnt in the classroom
9. Educated Indians lack national commitment.
10. E-Learning is good for the education system and society
11. Mobile phones - requirement of the day.
12. Compulsorily Rain water harvesting in Metro cities
13. Practice of safety in work environment.
14. Misuse of electric power.
15. Inter personal and public communication.
16. Misuse of mobile phones or electronic gadget.
17. Students lost in the internet forest. Is it advantageous?
18. ANY other relevant topic

Activity 1:

- ✓ **Prepare a Resume and a covering letter for any of the following jobs;**
 - Skilled technician for a switchgear fabrication industry.
 - Technician who is proficient in maintenance of substation in KPTCL
 - Any other suitable job

Note:

1. The ISTE student chapter/CCTEK/ Institution of Engineers (Student chapter)/ NSS wing/ Student club of polytechnic may be used as platform to conduct this activity.
2. The students with mutual understanding will form the groups. Each group consists of 5 students.
3. The students groups under the guidance of Course Coordinator will arrange/ organise any of the following activity.
4. A HAND WRITTEN or PRINTED brief summary of the activity/ skills developed in a specified format is to be submitted for CIE and SEE examinations.
5. ***Resume preparation (Activity 1) and brief summary of the Activity 2 are evaluated each for 5 marks. The average of these two is considered for assigning marks for life skills activity***

Activity 2:

The following topics are the suggested topics ;(Any ONE for 2 groups of 5 students each)

- 1 Career Guidance program
- 2 Conduct aptitude test.
- 3 Conduct Students seminars
- 4 Conduct Student presentation on topic chosen
- 5 Conduct GK quiz.
- 6 Conduct Technical quiz.
- 7 Essay writing on famous personality of 500 words.
- 8 Essay writing on national integrity of 500 words.
- 9 Conduct quiz on Electrical power Generation.
- 10 Conduct quiz on Electrical power Transmission.
- 11 Conduct quiz on Electrical power Utilisation.
- 12 Conduct quiz on Electrical power Distribution.
- 13 Essay writing on Principles of systematic life of 500 words.
- 14 Stress reduction and relaxation program.
- 15 Conduct Personality development program.
- 16 Solve Puzzles
- 17 ANY suitable activity

Note:

1. The Course Coordinator will guide the students to get prior permission from the identified industry.
2. A request and permission letter from office of the Polytechnic Principal will be given to the nearby industry identified to be visited (one day visit only).
3. A HAND WRITTEN or PRINTED brief summary of the industry visited in a specified format is to be submitted for CIE and SEE examinations.

Following are the suggested types of Industries/ Fields to be visited.

1. Electrical substation
2. Electrical MUSS station
3. Electrical receiving station
4. Electrical generating station nearby if available
5. HVDC power station
6. HVAC power station
7. Switch gear manufacturers
8. Distribution board assemblers
9. Electrical fitting manufacturers
10. Electrical Re-winders
11. Transformers manufacturers
12. Transformers Re-winders
13. Petroleum refineries
14. Chemical industries
15. Milk processing units
16. Food processing units
17. Textile industries
18. Printing industries
19. Saw mill
20. LT panel board in multi-storeyed apartment
21. Telecom switching (BSNL) unit
22. Water treatment unit
23. Radio station
24. TV station
25. Waste treatment plant
26. Any OTHER relevant topic

Reference Books:

1. Ashan Academy (2011), Communication and Analysis skills, Orient Blackswan, Hyderabad.
2. Chakravarthi K. T. & Chakravarthi L. T. (2011), Soft Skills for Managers, biztantra, New Delhi.
3. Alex K., (2009), Soft Skills: S. Chand & company Ltd, New Delhi.
4. Pink M. A. & S. E. Thomas. : Communication Skills, S. Chand & company Ltd, New Delhi.
5. Siddons S. (2008), Presentation Skills, Universities Press, Hyderabad.
6. Adler.: Communication : Goals and Approaches, Cengage Learning.

e-Resources

7. http://www.how-to-write-a-resume.org/resume_writing_examples.html
8. <http://www.mindtools.com/page8.html>
9. <http://lorien.ncl.ac.uk/ming/Dept/Tips/present/present.html>
10. <http://www.doaj.org/>
11. <http://www.openj-gate.com/>

Composition of Educational Components:

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No.	Educational Component	Weightage (%)
1	Understanding	40
2	Apply	40
3	Create	20
Total		100

Mapping Course Outcomes with Program Outcomes: (Course Outcome linkage to Cognitive Level)

Course Outcome		Activity/ Experiment linked	PO Mapped	Cognitive Level	Lab Sessions
CO1	Demonstrate the information and data Search in advancements of Electrical and Electronics Engg.	1	2, 3, 7, 8, 9, 10	Apply	15
CO2	Exposure to industry expert lectures and interaction.	2	2, 3, 7, 8, 9, 10	Understand	10
CO3	Demonstrate interpersonal skills by way of Group discussions in a healthy environment	3	2, 3, 7, 8, 9, 10	Apply	20
CO4	Develop confidence and life skills to handle engineering assignments	4	2, 3, 7, 8, 9, 10	Create	15
CO5	Understand industrial environment and visit industry	5	2, 3, 7, 8, 9, 10	Understand	18

U-Understanding; A-application/ Analysis; App-Application

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
Professional Practices Lab	0	3	3	0	0	0	3	3	3	3

LEVEL 3- HIGHLY ADDRESSED, LEVEL 2-MODERATELY ADDRESSED, LEVEL 1-LOW ADDRESSED.
 METHOD IS TO RELATE THE LEVEL OF PO WITH THE NUMBER OF HOURS DEVOTED TO THE COS WHICH ADDRESS THE GIVEN PO.
 IF $\geq 40\%$ OF CLASSROOM SESSIONS ADDRESSING A PARTICULAR PO, IT IS CONSIDERED THAT PO IS ADDRESSED AT LEVEL 3
 IF 25 TO 40% OF CLASSROOM SESSIONS ADDRESSING A PARTICULAR PO, IT IS CONSIDERED THAT PO IS ADDRESSED AT LEVEL 2
 IF 5 TO 25% OF CLASSROOM SESSIONS ADDRESSING A PARTICULAR PO, IT IS CONSIDERED THAT PO IS ADDRESSED AT LEVEL 1
 If $< 5\%$ of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

Course Assessment and Evaluation:

	What		To Whom	Frequency	Total Marks	Evidence Collected	Course Outcomes
Direct Assessment Method	CIE (Continuous Internal Evaluation)	Student Activity	Students	Each student activity to be evaluated for five (5) marks	25	RUBRICS Model	1 to 5
				TOTAL	25		
	SEE (Semester End Examination)	End Exam	Students	End of the Course	50	Answer Scripts	1 to 5
Indirect Assessment Method	Student Feedback on course		Students	Middle of The Course	Feed Back Forms		1 to 5
	End of Course Survey			End of The Course	Questionnaire		1 to 5

*CIE – Continuous Internal Evaluation

*SEE – Semester End Examination

Note: Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

MODEL OF RUBRICS FOR ASSESSING EACH STUDENT ACTIVITY:

RUBRICS to be devised by Course Co-coordinator for each activity like a SAMPLE given below-

RUBRICS FOR ACTIVITY(5 Marks)						
Dimension	Unsatisfactory	Developing	Satisfactory	Good	Exemplary	Student Score
	1	2	3	4	5	
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collect much information; but very limited relate to the topic	Collects some basic information; most refer to the topic	Collects a great deal of information; all refer to the topic	Ex: 4
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties but unreliable.	Performs very little duties	Performs nearly all duties	Performs all duties of assigned team roles	5
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Normally does the assigned work	Always does the assigned work without having to be reminded.	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Talks good; but never show interest in listening others	Listens, but sometimes talk too much	Listens and speaks a fair amount	2
Average / Total marks=$(4+5+3+2)/4=14/4=3.5=4$						

Scheme of Valuation for CIE (IA):

1. The marks for each activity should be awarded based on **Rubrics Model and not based on REPORT submitted.**
2. For each activity student has to submit brief summary of the activity carried out or undergone in the form of a Report.

Sl. No.	Student Activity	Marks
1	Information Search, Data Collection and Presentation	5
2	Guest Lecture	5
3	Group Discussion	5
4	Life skills	5
5	Industrial Visit	5
Total		25

Scheme of Valuation for Semester End Examination (SEE) – 50 Marks

Serial no	Description	Marks
1	Report Submitted on all Five Activities	10
2	PPT Presentation on Information Search and Data Collection	20
3	Writing on Life skills Activity	10
4	Group Discussion/ Public Speaking (Max. 3 Mins.) on Topic given/ Any One Activity	10
TOTAL		50