MINUTES OF MEETING

UG (Electrical Engineerign)

The internal BOS Meeting of the UG (Electrical Engineering) held in the office of HOD (EIE) on dated 23rd June, 2021 at 03.00 PM.

Agenda of the meeting was to select the subjects and finalize the syllabi for initiating the Minor Degree as well as Honors Degree.

The following members attended the meeting.

1.	Dr. Sanjay Marwaha, Professor	Chairman
2.	Dr. J.S. Dhillon, Professor	Member
3.	Dr. A.S. Arora, Professor	Member
4.	Dr. Surita Maini, Professor	Member
5.	Dr. Manpreet Kaur, Professor	Member
6.	Er. Diljinder Singh, Assoc. Professor	Member
7.	Dr. M.S. Manna, Assoc. Professor	Member
8.	Dr. Charanjiv Gupta, Assoc. Profesor	Member
9.	Dr. Rishabh Verma, Asstt. Professor	Member

Dr. Gurmeet Singh, concerned Co-ordinator who was assigned task to propose the scheme and subjects of Minor and Honor's degree put up the proposal for deliberation in BOS. After brain storming discussion the scheme for Minor Degree as well as Honors Degree (as enclosed) was finalized with mutual consensus.

23/6/21

Dr. Gurmeet Singh

Dr. Rishabh Verma

Dr. Charanjiv Gupta

Dr. M.S. Manna

Diljinder Singh

23/6/21

Prof. Manpreet Kaur

Prof. Surita Maini

Prof. A.S. Arora

25.06.2021

Prof. J.S. Dhillon

23/6/21

Prof. S. Marwaha
Chairman

Course Scheme for Under Graduate Program in Electrical Engineering

Department of Electrical & Instrumentation Engineering

Sant Longowal Institute of Engineering & Technology
Longowal-148106
Phone: 01672-253119/253120 Fax: 01672-280057
Website :www.sliet.ac.in

Vision of Department

Electrical and Instrumentation Engineering Department shall strive to act as a podium for the development and transfer of technical competence in academics, entrepreneurship and research in the field of Electrical and Instrumentation Engineering to meet the changing need of society.

MISSION

1 To provide modular Programs from skill development to the research level.
2 To impart education and training in innovative state-of-the-art technology in the field of Electrical and Instrumentation Engineering.
3 To promote holistic development among the students.
4 To provide extension services to rural society, industry professionals, institutions of research and higher learning in the field of Electrical and Instrumentation Engineering.
5 To interact with the industry, educational and research organizations, and alumni in the fields of curriculum development, trainingandresearchforsustainablesocialdevelopmentandchangingneedsofsociety.

PROGRAM EDUCATIONAL OBJECTIVES (PEO):

The following Program Educational Objectives are designed based on the department mission. The graduates of Instrumentation and Control Engineering should be able to demonstrate

1 skill in professional / academic career using the knowledge of mathematical, scientific and engineering principles.
2 expertise in solving real life problems, designing innovative products and systems that are techno-economically and socially sustainable.
3 sustained learning and adaptation to modern engineering tools, techniques and practices through instruction, group activity and self-study.
4 leadership and team work while working with diverse multidisciplinary /interdisciplinary groups.
5 professional ethics and commitment to organizational goals.

PROGRAM OUTCOMES

Engineering Graduates will be able to:

1 **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3 **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6 **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8 **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9 **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10 **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11 **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO)

1. Understand and find the appropriate solution for Power Systems, Electrical energy utilization and conservation.
2. Use of latest technologies to develop innovative solutions for Electrical Engineering and its allied field problems.

Study Scheme for Bachelor of Engineering in Electrical (GEE)

Semester-I Group-A (GEE)							
S. No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	BSMA-401	Engineering Mathematics I	3	1	0	4	4
2	BSPH-401	Applied Physics	3	1	0	4	4
3	ESEE-401	Elements of Electrical Engineering	2	1	0	3	3
4	ESCS-401	Elements of Computer Engineering	2	0	0	2	2
5	ESEC-401	Elements of Electronics Engineering	2	0	0	2	2
6	BSPH-402	Applied Physics Lab	0	0	2	2	1
7	ESEE-402	Elements of Electrical Engineering Lab	0	0	2	2	1
8	ESCS-402	Elements of Computer Engineering Lab	0	0	4	4	2
9	ESEC-402	Elements of Electronics Engineering Lab	0	0	2	2	1
		Total	12	03	10	25	20

Semester-II A Group-A (GEE)							
S. No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	BSMA-402	Engineering Mathematics II	3	1	0	4	4
2	BSCH-401	Applied Chemistry	3	1	0	4	4
3	ESME-401	Elements of Mechanical Engineering	2	1	0	3	3
4	ESME-402	Workshop Technology and Practice	1	0	0	1	1
5	HSMC-401	English Communication and Soft Skills	1	0	0	1	1
6	BSCH-402	Applied Chemistry Lab	0	0	2	2	1
7	ESME-403	Elements of Mechanical Engineering Lab	0	0	2	2	1
8	ESME-404	Engineering Drawing	0	0	4	4	2
9	ESME-405	Workshop Technology and Practice Lab	0	0	4	4	2
10	HSMC-402	English Communication and Soft Skills Lab	0	0	2	2	1
11	MCCH-401	Mandatory Course-I	3	0	0	3	0
		Total	13	03	14	30	20

Semester-II B Group-A (GEE)							
1	TPIN-421	Practical Training During Summer Vacations (In-house) 02 weeks				40	1 (S/US)
2	TPIN-422	Technical Competency				40	1 (S/US)

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Semester-III Group-A (GEE)

S. No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	BSMA-501	Numerical and Statistical Methods	3	0	0	3	3
2	PCEE-511	Electrical Circuit Analysis and Synthesis	3	1	0	4	4
3	PCEE-512	Electronic Devices and Circuits	3	1	0	4	4
4	PCEE-513	Electrical Machines-I (Transformers and DC Machines)	3	1	0	4	4
5	BSBL-501	Biology for Engineers	2	0	0	2	2
6	BSMA-502	Numerical and Statistical Methods Lab	0	0	2	2	1
7	PCEE-514	Electrical Machines-I Lab	0	0	2	2	1
8	PCEE-515	Electrical Circuit Lab	0	0	2	2	1
		Total	14	03	06	23	20

Semester-IV –A Group-A (GEE)

S. No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	ESME-501	Engineering Mechanics	3	1	0	4	4
2	PCEE-521	Digital Electronics	3	0	0	3	3
3	PCEE-522	Electrical Machines-II (Asynchronous and Synchronous machines)	3	1	0	4	4
4	PCEE-523	Signals and Systems	3	1	0	4	4
5	HSMC-501	Principles of Management	3	0	0	3	3
6	PCEE-524	Analog and Digital Electronics Lab	0	0	2	2	1
7	PCEE-525	Electrical Machines-II Lab	0	0	2	2	1
8	MCMH-501	Mandatory Course - 2	3	0	0	3	0
		Total	18	3	4	25	20

Semester-IV-B Group-A (GEE)

1	TPID-521	Industrial Training 02 weeks				40	1 (S/US)
2	EAA-521+	Fractional credit course/Extra Academic Activity +GROUP A/B/C				40	1 (S/US)

Semester-V-A Group-A (GEE)

S No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCEE-611	Electrical Power System-I (Generation, transmission and distribution)	3	0	0	3	3
2	PCEE-612	Control Systems	3	1	0	4	4
3	OEXX-611	Open Elective-1	3	0	0	3	3
4	OEXX-612	Open Elective-2	3	0	0	3	3
5	PEEE-611	Professional Elective-1	3	0	0	3	3
6	HSMC-601	Technical Communication	2	0	0	2	2
7	PCEE-613	Control System Lab	0	0	2	2	1
8	HSMC-602	Technical Communication Lab	0	0	2	2	1
		Total	17	1	4	22	20

Semester-V-B Group-A (GEE)

1	EAA-611+	Fractional credit course/Extra Academic Activity +GROUP A/B/C				40	1(S/US)

Semester-VI-A Group-A (GEE)

S No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCEE-621	Electrical and Electronic Measurements	3	0	0	3	3
2	PCEE-622	Electrical Power System-II (Analysis and Protection)	3	1	0	4	4
3	OEXX-621	Open Elective-3	3	0	0	3	3
4	OEXX-622	Open Elective-4	3	0	0	3	3
5	PEEE-621	Professional Elective-2	3	0	0	3	3
6	HSMC-603	Engineering Economics and Entrepreneurship	3	0	0	3	3
7	PCEE-623	Power System Lab	0	0	2	2	1
		Total	18	1	2	21	20

Semester-VI-B Group-A (GEE)

1	TPID-621	Industrial Training 04 weeks				40	2 (S/US)
2	EAA-622+	Fractional credit course/Extra Academic Activity +GROUP A/B/C				40	1 (S/US)

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Semester-VII Group-A (GEE)							
S No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCEE-711	Microprocessors and Microcontrollers	3	1	0	4	4
2	PCEE-712	Power Electronics and Drives	3	0	0	3	3
3	PEEE-711	Professional Elective-3	3	0	0	3	3
4	PEEE-712	Professional Elective-4	3	0	0	3	3
5	OEXX-711	Open Elective-5	3	0	0	3	3
6	PCEE-713	Microprocessors and Microcontrollers Lab	0	0	2	2	1
7	PCEE-714	Power Electronics and Drives Lab	0	0	2	2	1
8	PREE-711	Project Stage I and Seminar	0	0	4	4	2
		Total	15	1	8	24	20

Semester-VIII Group-A (GEE)							
S No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PEEE-721	Professional Elective-5	3	0	0	3	3
2	PREE-722	Professional Elective-6	3	0	0	3	3
3	PREE-721	Project Stage II	0	0	12	12	6
		Total	6	0	12	18	12
OR							
S No.	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	INID-721	Internship in Industry				40	6
2	PREE-721	Project Stage II	0	0	12	12	6
		Total					12

List of Mandatory Courses

1. **MCCH-401 Mandatory Course – 1:** Environmental Studies
2. **MCMH-501 Mandatory Course – 2:** Indian Constitution

List of courses for B.E. (Minor) Program in Electrical Engineering

Semester-III							
S No	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
1	MDEE-511	Electrical Technology	3	1	0	4	4
		Total	3	1	0	4	4

Semester-IV							
S No	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
	MDEE-521	Electromagnetic Energy Conversion	3	1	0	4	4
		Total	3	1	0	4	4

Semester-V							
S No	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
1	MDEE-611	Electric Power System	3	1	0	4	4
		Total	3	1	0	4	4

Semester-VI							
S No	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
1	MDEE-621	Industrial Electronics	3	1	0	4	4
		Total	3	1	0	4	4

Semester-VII							
S No	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
1	MDEE-711	Electrical Energy and Utilization	3	1	0	4	4
		Total	3	1	0	4	4

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List of Advanced level courses for B.E.(Honors) in Electrical Engineering

Semester-V							
S No	Sub. Code	Subject Name	L	T	P	Hrs.	Credits
1	HDEE-611	Generalised Theory of Electrical Machines	3	1	0	4	4
	HDEE-612	Distributed Generation and Smart Grids	3	1	0	4	4
		Total	6	2	0	8	8

Semester-VI							
S No	Sub. Code	Subject Name	L	T	P	Hrs.	Credits
	HDEE-621	Special Purpose Electric Machines	3	1	0	4	4
		Total	3	1	0	4	4

Semester-VII							
S No	Sub. Code	Subject Name	L	T	P	Hrs.	Credits
1	HDEE-711	Power System Operation and Control	3	1	0	4	4
		Total	3	1	0	4	4

Semester-VIII							
S No	Sub. Code	Subject Name	L	T	P	Hrs.	Credits
1	PHEE-721	Project Honors	0	0	08	08	4
		Total	0	0	08	08	4

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List of Open Electives

LIST OF OPEN ELECTIVES							
S. No.	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
1	**OEEE-611**	**Open Elective-I**	3	0	0	3	3
a)	OEEE-611A	~~Electrical Circuits~~	3	0	0	3	3
b)	OEEE-611B	Electrical Engineering Materials	3	0	0	3	3
c)	OEEE-611C	Renewable Energy Sources	3	0	0	3	3
d)	OEEE-611D/ PCIE611B	Electrical Machines	3	0	0	3	3
2	**OEEE-612**	**Open Elective-II**	3	0	0	3	3
a)	OEEE-612A	Energy Conservation Practices	3	0	0	3	3
b)	OEEE-612B	Energy Auditing and Management	3	0	0	3	3
c)	OEEE-612C	Utilization of Electrical Energy	3	0	0	3	3
	OEEE-612D	Electric Vehicles Technology	3	0	0	3	3
3	**OEEE-621**	**Open Elective-III**	3	0	0	3	3
a)	OEEE-621A	~~Microprocessors and Applications~~	3	0	0	3	3
b)	OEEE-621B	Elements of Power System	3	0	0	3	3
c)	OEEE-621C	~~Biomedical Instrumentation~~	3	0	0	3	3
d)	OEEE-621D	Electrical Estimation and Costing	3	0	0	3	3
4	**OEEE-622**	**Open Elective-IV**	3	0	0	3	3
a)	OEEE-622A	~~Control System~~	3	0	0	3	3
b)	OEEE-622B	~~Microcontrollers and Applications~~	3	0	0	3	3
c)	OEEE-622C	Electrical Safety and Applications	3	0	0	3	3
d)	OEEE-622D	Electric derives and traction system	3	0	0	3	3
5	**OEEE-711**	**Open Elective-V**	3	0	0	3	3
a)	OEEE-711A	Signals and Systems	3	0	0	3	3
b)	OEEE-711B	~~Sensors and Transducers~~	3	0	0	3	3
c)	OEEE-711C	~~Soft Computing Techniques~~	3	0	0	3	3
d)	OEEE-711D	Special Electrical Machines	3	0	0	3	3

List of Professional Electives

List of Professional Electives							
S. No.	**Sub. Code**	**Subject Name**	**L**	**T**	**P**	**Hrs.**	**Credits**
1	**PEEE-611**	**Professional Elective-1**	3	0	0	3	3
a)	PEEE-611A	Biomedical Instrumentation	3	0	0	3	3
b)	PEEE-611B	Electromagnetic Field Theory	3	0	0	3	3
c)	PEEE-611C	Electrical Safety and Standards	3	0	0	3	3
d)	PEEE-611D	Group Chain Technology of Distribution System	3	0	0	3	3
2	**PEEE-621**	**Professional Elective-2**	3	0	0	3	3
a)	PEEE-621A	Electrical Energy Conservation and Auditing	3	0	0	3	3
b)	PEEE-621B	Non-Linear and Optimal Control	3	0	0	3	3
c)	PEEE-621C	Telemetry and Data Acquisition	3	0	0	3	3
d)	PEEE-621D	Smart Metering and Security System	3	0	0	3	3
3	**PEEE-711**	**Professional Elective-3**	3	0	0	3	3
a)	PEEE-711A	Wind and Solar Energy Systems	3	0	0	3	3
b)	PEEE-711B	Computational Electromagnetic	3	0	0	3	3
c)	PEEE-711C	Reliability Engineering	3	0	0	3	3
d)	PEEE-711D	Computer Relaying and Phasor Measurement Unit	3	0	0	3	3
4	**PEEE-712**	**Professional Elective-4**	3	0	0	3	3
a)	PEEE-712A	Soft Computing Techniques	3	0	0	3	3
b)	PEEE-712B	Electrical and Hybrid Vehicles	3	0	0	3	3
c)	PEEE-712C	Virtual Instrumentation	3	0	0	3	3
d)	PEEE-712D	Power System Compensation	3	0	0	3	3
5	**PEEE-721**	**Professional Elective-5**	3	0	0	3	3
a)	PEEE-721A	Power Quality and FACTs	3	0	0	3	3
b)	PEEE-721B	Utilization of Electrical Energy	3	0	0	3	3
c)	PEEE-721C	Robotics	3	0	0	3	3

d)	PEEE-721C	Power System Restructuring	3	0	0	3	3
6	**PEEE-722**	**Professional Elective-6**	3	0	0	3	3
a)	PEEE-722A	Advanced Microprocessors and Microcontrollers	3	0	0	3	3
b)	PEEE-722B	High Voltage Engineering	3	0	0	3	3
c)	PEEE-722C	Modelling and Simulation	3	0	0	3	3
d)	PEEE-722D	Power System Optimization	3	0	0	3	3

S. No.	Course Components	Curriculum contents (% of total number of the credits of the program)	Total number of contact hours	Total number of credits
1	Basic Sciences	15	27	24
2	Engineering Sciences	15	33	24
3	Humanities and Social Sciences	6.875	13	11
4	Program Core	32.5	60	52
5	Program Electives	7.5	12	12
6	Open Electives	9.375	15	15
7	Project	3.75	12	6
8	Internship/Seminar/Industrial Training	8.125	204	13
9	Any other (Mandatory course and fractional credit course)	1.875	127	3
	Total number of Credits			160

S. No.	Program	Total No. of Credits
1	Under Graduate Program	160
2	Minor Degree (Electrical Engineering)	20
3	Honors Degree(Electrical Engineering)	20

Committee Members.

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HOD(EIE)

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