

B.Tech. Electronics and Instrumentation Control Engineering

Blending of Indian knowledge system with existing knowledge

(June2020)

To enhance the existing knowledge and skill of people, blending learning is the most important asset in India. Blending knowledge provides the collaboration of scientific and non-scientific belongings. In today's scenario blending learning help in the growth of the country and boost up the economy of the country. The creativity of the student's knowledge also enriches by this type of learning. Blending learning also helps the small industries in growth and improvement of their technologies. The outcome of blended learning include the fact that many students can learn best independently, on their own time frame via traditional knowledge and connected to society. Blended learning has seen growth over time, largely because of the increasing accessibility of technology and the learning done in this virtual way is often best consolidated by trial run or validation through personal interactions.

Blending of Indian knowledge system with existing knowledge can be done by doing local meetings with farmers, artisans, and experienced mechanics, etc. of their traditional knowledge. These types of meetings can be conducted in the local language to know complete information about their traditional work/knowledge. Indigenous traditional knowledge is relatively simple, cheaper, safer but usually lack in energy efficiency and sustainability. Firstly, the traditional product is documented with all its details using the feedback from various users. It is blended with the Indian knowledge scientific system to get energy-efficient, user-friendly, and sustainable products for local people. It will connect society with engineering institutes for solving their problems and providing better equipment for their livelihood. As with any educational model, of course, blended learning should be used sensibly and thoughtfully, with an eye toward enriching student learning. Department has made compulsory projects in each semester such projects will be mostly on the blending of the Indian knowledge system with existing knowledge.

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S.No.	Semester	Project Code	Project	Mode of Learning
1	3 rd	ES301	Electronics Project Workshop-I	Blended Learning
2	4 th	ES402	Electronics Project Workshop-II	Blended Learning
3	5 th	EI555	Electronics Project Workshop-III	Blended Learning
4	6 th	EI654	Electronics Project Workshop-IV	Blended Learning
5	7 th	EI751 & EIP701	Electronics Workshop-V & Major Project	Blended Learning
6	8 th	EIP801	Industrial Training with projects	Industrial training and Blended learning

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Subject wiseList for Digital/ Classroom learning

S. No.	Semester	Subjects	Digital Self Learning	Digital Aided Learning	Digital and Classroom Learning	Class room and lab learning
1	3 rd	Electronics Devices		https://nptel.ac.in/courses/117/102/117102061/	Digital and classroom learning	
2	3 rd	Digital System Design		https://nptel.ac.in/courses/117/105/117105080/	Digital and classroom learning	
3	3 rd	Signal and Systems		https://nptel.ac.in/courses/117/104/117104074/https://nptel.ac.in/courses/117/101/117101055/	Digital and classroom learning	
4	3 rd	Network Theory		https://nptel.ac.in/courses/108/105/108105159/	Digital and classroom learning	
5	3 rd	Mathematics-III		https://nptel.ac.in/courses/122/107/122107037/ https://nptel.ac.in/courses/122/103/122103012/	Digital and classroom learning	

6	3 rd	Indian Constitution/ Essence of Indian Traditional Knowledge	https://nptel.ac.in/courses/129/106/129106002/	Digital and classroom learning	
7	3 rd	Electronics Devices Lab	http://www.vlab.co.in/		Lab Learning
8	3 rd	Digital System Design Lab	http://www.vlab.co.in/		Lab Learning
9	3 rd	Network Theory Lab	http://www.vlab.co.in/		Lab Learning
10	4 th	Control System Engineering	https://nptel.ac.in/courses/108/102/108102043/ https://nptel.ac.in/courses/108/102/108102044/ https://nptel.ac.in/courses/108/101/108101037/ https://nptel.ac.in/courses/108/106/108106098/ https://swayam.gov.in/nd1_noc20_ee62/preview https://swayam.gov.in/nd1_noc20_ee90/preview	Digital and classroom learning	
11	4 th	Analog Circuits	https://nptel.ac.in/courses/108/105/108105158/ https://nptel.ac.in/courses/108/102/108102112/ https://nptel.ac.in/courses/108/102/108102095/N https://nptel.ac.in/courses/117/107/117107094/ https://swayam.gov.in/nd1_noc20_ee89/preview	Digital and classroom learning	

12	4 th	Electrical Measurement and Instrumentation		https://nptel.ac.in/courses/108/105/108105153/	Digital and classroom learning	
13	4 th	Electromagnetic Waves		https://nptel.ac.in/courses/117/103/117103065/ https://nptel.ac.in/courses/108/106/108106073/ https://nptel.ac.in/courses/108/104/108104087/ https://nptel.ac.in/courses/108/102/108102119/	Digital and classroom learning	
14	4 th	Engineering Mechanics		https://nptel.ac.in/courses/112/106/112106286/ https://nptel.ac.in/courses/112/103/112103108/ https://nptel.ac.in/courses/112/103/112103109/ https://swayam.gov.in/nd1_noc20_me46/preview	Digital and classroom learning	
15	4 th	Biology		https://nptel.ac.in/courses/122/103/122103039/	Digital and classroom learning	
16	4 th	Control System Engg. Lab		http://www.vlab.co.in/		Lab Learning
17	4 th	Analog Circuits Lab		http://www.vlab.co.in/		Lab Learning

18	4 th	Electrical Measurement and Instrumentation Lab	http://www.vlab.co.in/		Lab Learning
19	4 th	Electromagnetic Waves Lab	http://www.vlab.co.in/		Lab Learning
20	5 th	Sensors, Signal Conditioning and Telemetry	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
21	5 th	Modern Control System	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
22	5 th	Microprocessors and Microcontrollers	https://nptel.ac.in/courses/108/105/108105102/ https://nptel.ac.in/courses/108/107/108107029/	Digital and classroom learning	
23	5 th	Environmental Sciences	https://nptel.ac.in/courses/127/105/127105018/	Digital and classroom learning	
24	5 th	Power Electronics (Program Elective-I)	https://nptel.ac.in/courses/108/102/108102145/ https://nptel.ac.in/courses/108/101/108101126/ https://nptel.ac.in/courses/108/105/108105066/ https://nptel.ac.in/courses/108/101/108101038/	Digital and classroom learning	

25	5 th	Industrial Instrumentation (Program Elective-I)	https://nptel.ac.in/courses/108/106/108106074/ https://nptel.ac.in/courses/108/105/108105064/	Digital and classroom learning
26	5 th	Virtual/Intelligent Instrumentation (Program Elective-I)	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning
27	5 th	Computer Architecture (Open Elective -1)	https://nptel.ac.in/courses/106/102/106102157/ https://nptel.ac.in/courses/106/106/106106134/ https://nptel.ac.in/courses/106/104/106104122/ https://nptel.ac.in/courses/106/102/106102062/	Digital and classroom learning
28	5 th	Data Structure (Open Elective -1)	https://nptel.ac.in/courses/106/102/106102064/ https://nptel.ac.in/courses/106/106/106106130/ https://nptel.ac.in/courses/106/106/106106133/	Digital and classroom learning
29	5 th	Basics of Communication Engineering (Open Elective -1)	https://nptel.ac.in/courses/117/105/117105143/ https://nptel.ac.in/courses/108/102/108102096/ https://nptel.ac.in/courses/117/105/117105077/ https://nptel.ac.in/courses/117/101/117101051/	Digital and classroom learning
30	5 th	Financial Management (Open Elective -1)	https://nptel.ac.in/courses/110/107/110107144/	Digital and classroom learning

31	5 th	Microprocessors and Microcontrollers Lab	http://www.vlab.co.in/		Lab Learning
32	5 th	Power Electronics/ Virtual Instrumentation Lab	http://www.vlab.co.in/		Lab Learning
33	6 th	Industrial Process Control	https://nptel.ac.in/courses/108/105/108105062/ https://nptel.ac.in/courses/108/105/108105063/ https://nptel.ac.in/courses/108/105/108105088/	Digital and classroom learning	
34	6 th	Digital Signal Processing	https://nptel.ac.in/courses/117/102/117102060/ https://nptel.ac.in/courses/117/104/117104070/ https://nptel.ac.in/courses/108/105/108105055/ https://nptel.ac.in/courses/108/106/108106151/	Digital and classroom learning	
35	6 th	Internet of Things (Program Elective-II)	https://nptel.ac.in/courses/106/105/106105166/ https://nptel.ac.in/courses/106/105/106105195/ https://nptel.ac.in/courses/108/108/108108098/	Digital and classroom learning	
36	6 th	Digital Control (Program Elective-II)	https://nptel.ac.in/courses/108/103/108103008/	Digital and classroom learning	
37	6 th	Numerical Methods (Program Elective-	https://nptel.ac.in/courses/111/107/111107105/ https://nptel.ac.in/courses/122/102/122102009/	Digital and classroom learning	

		II)		https://nptel.ac.in/courses/122/106/122106033/ https://nptel.ac.in/courses/111/105/111105038/	ng	
38	6 th	Computer Based Instrumentation and Control (Program Elective-III)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
39	6 th	Power Plant Instrumentation (Program Elective-III)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
40	6 th	Process Modeling & Optimization (Program Elective-III)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
41	6 th	Building Automation (Program Elective-III)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
42	6 th	Analytical instrumentation (Program Elective-IV)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
43	6 th	Control System Components (Program Elective-IV)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	

44	6 th	Optical Instrumentation (Program Elective-IV)		https://nptel.ac.in/courses/102/108/102108082/	Digital and classroom learning	
45	6 th	Digital Communication (OE-II)		https://nptel.ac.in/courses/108/102/108102096/ https://nptel.ac.in/courses/117/105/117105077/ https://nptel.ac.in/courses/117/101/117101051/	Digital and classroom learning	
46	6 th	Scientific Computing (OE-II)		https://nptel.ac.in/courses/101/104/101104013/	Digital and classroom learning	
47	6 th	Soft Computing (OE-II)		https://nptel.ac.in/courses/106/105/106105173/	Digital and classroom learning	
48	6 th	Industrial Economics (OE-II)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
49	6 th	Digital Signal Processing Lab		http://www.vlab.co.in/		Lab Learning
50	6 th	Instrumentation Lab/ VLSI Design Lab		http://www.vlab.co.in/		Lab Learning

51	7 th	Embedded System (Program Elective-V)	https://nptel.ac.in/courses/108/105/108105057/ https://nptel.ac.in/courses/108/102/108102045/ https://nptel.ac.in/courses/106/105/106105159/ https://swayam.gov.in/nd1_noc20_ee98/preview	Digital and classroom learning
52	7 th	PLCs and SCADA (Program Elective-V)	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning
53	7 th	Instrumentation & System Design (Program Elective-V)	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning
54	7 th	Introduction to MEMS (Program Elective-V)	https://nptel.ac.in/courses/117/105/117105082/	Digital and classroom learning
55	7 th	Fuzzy Control System (Program Elective-VI)	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning
56	7 th	AI and Expert System (Program Elective-VI)	https://nptel.ac.in/courses/106/105/106105077/ https://nptel.ac.in/courses/106/105/106105078/ https://nptel.ac.in/courses/106/105/106105079/ https://nptel.ac.in/courses/106/102/106102220/	Digital and classroom learning

57	7 th	Micro / Nano Devices and Sensors (Program Elective-VI)		https://nptel.ac.in/courses/108/108/108108147/	Digital and classroom learning	
58	7 th	Digital Image & Video Processing (Program Elective-VI)		https://nptel.ac.in/courses/117/105/117105135/ https://nptel.ac.in/courses/117/105/117105079/ https://nptel.ac.in/courses/117/104/117104020/	Digital and classroom learning	
59	7 th	Non Linear Control System (Program Elective-VII)		https://nptel.ac.in/courses/108/106/108106024/ https://nptel.ac.in/courses/108/106/108106162/	Digital and classroom learning	
60	7 th	Batch Process Control (Program Elective-VII)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
61	7 th	Stochastic Control (Program Elective-VII)		https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning	
62	7 th	Electromagnetic compatibility for Instruments (Program Elective-VII)		https://nptel.ac.in/courses/108/106/108106138/	Digital and classroom learning	

63	7 th	Computer Network (Open Elective-III)		https://nptel.ac.in/courses/106/106/106106091/ https://nptel.ac.in/courses/106/105/106105080/ https://nptel.ac.in/courses/106/105/106105081/	Digital and classroom learning	
64	7 th	Banking System and Taxation (Open Elective-III)		https://nptel.ac.in/courses/110/105/110105143/ https://nptel.ac.in/courses/109/104/109104076/	Digital and classroom learning	
65	7 th	Operational Research (Open Elective-III)		https://nptel.ac.in/courses/111/107/111107128/ https://nptel.ac.in/courses/110/106/110106062/ https://nptel.ac.in/courses/112/106/112106134/ https://nptel.ac.in/courses/110/106/110106059/	Digital and classroom learning	
66	7 th	Human Resource Management (Open Elective-IV)		https://nptel.ac.in/courses/110/105/110105069/ https://nptel.ac.in/courses/110/102/110102058/ https://nptel.ac.in/courses/122/105/122105020/	Digital and classroom learning	
67	7 th	Mobile Communication and Networks (Open Elective-IV)		https://nptel.ac.in/courses/117/104/117104099/	Digital and classroom learning	

68	7 th	Wireless Sensor Networks (Open Elective-IV)	https://nptel.ac.in/courses/106/105/106105160/	Digital and classroom learning
69	7 th	Industrial Safety (Open Elective-IV)	https://nptel.ac.in/courses/110/105/110105094/	Digital and classroom learning
70	7 th	Cyber Laws & Security (Open Elective-IV)	https://nptel.ac.in/ https://www.youtube.com/	Digital and classroom learning