

JAGADAMBHA BAHUUDDESHIYA GRAMIN VIKAS SANSTH'S

# JAGADAMBHA

## COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL



Approved by A.I.C.T.E. & Government of Maharashtra, Affiliated to S.G.B. Amravati University, Amravati.

**Dr. Hemant M. Baradkar**

M.Tech. (Electronics), Ph.D. (E & TC. Engg.)  
**Principal**

**Dr. Shital A. Watile**

M.Sc., Ph.D.  
**Secretary**

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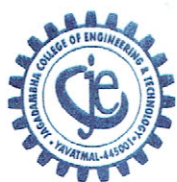
Criteria I

*1.3.2 Average Percentage of courses that include experiential learning through project work/field work/internship during the Academic Year 2016-17*

ARNI ROAD, YAVATMAL - 445001 ( M.S.) INDIA

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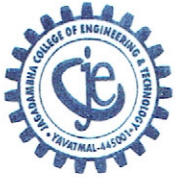


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*1.3.2 Average Percentages of courses that include experiential learning through project work/field work/internship during the Academic Year 2020-21*

### SUMMARY SHEET

Sr. No.	Particulars	No. of courses	Page No.
1.	B.E. Electrical Engineering	48	1-2
2.	B.E. Computer Engineering	50	2-3
3.	B.E. Electronics & Telecommunication Engineering	48	3-5
4.	B.E. Mechanical Engineering	54	5-6
5.	B.E. Civil Engineering	53	6-8



I

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1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship during the Last five years

Academic Year 2016-17

Sr. No.	Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Year of offering
1	B.E. Electrical Engg	112729310	Network Analysis	3EE02	2011-2012
2	B.E. Electrical Engg	112729310	Energy Resources & Generation	3EE03	2011-2012
3	B.E. Electrical Engg	112729310	Electronic Devices & Circuits	3EE04	2011-2012
4	B.E. Electrical Engg	112729310	Electrical Measurement & Instrumentation	3EE05	2011-2012
5	B.E. Electrical Engg	112729310	Network Analysis - Lab	3EE06	2011-2012
6	B.E. Electrical Engg	112729310	Electronic Devices & Circuits - Lab	3EE07	2011-2012
7	B.E. Electrical Engg	112729310	Electrical Measurement & Instrumentation-Lab	3EE08	2011-2012
8	B.E. Electrical Engg	112729310	Electrical Machine-I	4EE01	2011-2012
9	B.E. Electrical Engg	112729310	Electromagnetic Theory	4EE02	2011-2012
10	B.E. Electrical Engg	112729310	Analog & Digital Circuits	4EE03	2011-2012
13	B.E. Electrical Engg	112729310	Electrical Machine-I-Lab	4EE06	2011-2012
14	B.E. Electrical Engg	112729310	Analog & Digital Circuits - Lab	4EE07	2011-2012
16	B.E. Electrical Engg	112729310	Control Systems-I	5EE01	2012-2013
17	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller	5EE02	2012-2013
18	B.E. Electrical Engg	112729310	Electrical Machines-II	5EE03	2012-2013
19	B.E. Electrical Engg	112729310	Signals & Systems	5EE04	2012-2013
21	B.E. Electrical Engg	112729310	Communication Skills	5EE06	2012-2013
22	B.E. Electrical Engg	112729310	Control Systems- Lab	5EE07	2012-2013
23	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller - Lab	5EE08	2012-2013
24	B.E. Electrical Engg	112729310	Electrical Machines-II - Lab	5EE09	2012-2013
25	B.E. Electrical Engg	112729310	Communication Skills - Lab	5EE10	2012-2013
26	B.E. Electrical Engg	112729310	Electrical Power-I	6EE01	2012-2013
27	B.E. Electrical Engg	112729310	Optimization Techniques	6EE02	2012-2013
28	B.E. Electrical Engg	112729310	Power Electronics	6EE03	2012-2013
29	B.E. Electrical Engg	112729310	Computer Aided Machine Design	6EE04	2012-2013



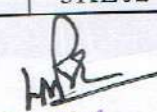
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30	B.E. Electrical Engg	112729310	Free Elective-II : Electronic Test Instruments - Analog & Digital	6FEEXT5	2012-2013
31	B.E. Electrical Engg	112729310	Electrical Energy Utilization	6EE06	2012-2013
32	B.E. Electrical Engg	112729310	Power Electronics - Lab	6EE07	2012-2013
33	B.E. Electrical Engg	112729310	Computer Aided Machine Design - Lab	6EE08	2012-2013
34	B.E. Electrical Engg	112729310	Electrical Energy Utilization - Lab	6EE09	2012-2013
35	B.E. Electrical Engg	112729310	Control System-II	7EE01	2013-2014
36	B.E. Electrical Engg	112729310	Power System Operation & Control	7EE02	2013-2014
37	B.E. Electrical Engg	112729310	Electrical Power-II	7EE03	2013-2014
38	B.E. Electrical Engg	112729310	Switchgear & Protection	7EE04	2013-2014
39	B.E. Electrical Engg	112729310	Professional Elective-I : Computer Methods in Power System Analysis	7EE05	2013-2014
40	B.E. Electrical Engg	112729310	Project & Seminar	7EE06	2013-2014
41	B.E. Electrical Engg	112729310	Electrical Power-II - Lab	7EE07	2013-2014
42	B.E. Electrical Engg	112729310	Switchgear & Protection - Lab	7EE08	2013-2014
43	B.E. Electrical Engg	112729310	Power System Stability	8EE01	2013-2014
44	B.E. Electrical Engg	112729310	High Voltage Engg	8EE02	2013-2014
45	B.E. Electrical Engg	112729310	Digital Signal Processing	8EE03	2013-2014
46	B.E. Electrical Engg	112729310	Professional Elective-II : Electric Drives & Control	8EE04	2013-2014
47	B.E. Electrical Engg	112729310	Project & Seminar	8EE05	2013-2014
48	B.E. Electrical Engg	112729310	Digital Signal Processing - Lab	8EE06	2013-2014
49	B.E. Computer Engg	112724510	Programing Methodology	3KE02	2011-2012
50	B.E. Computer Engg	112724510	Electronic Devices and circuits	3KE03	2011-2012
51	B.E. Computer Engg	112724510	Discret structure	3KE04	2011-2012
52	B.E. Computer Engg	112724510	Computer organization	3KE05	2011-2012
53	B.E. Computer Engg	112724510	Programing Methodology-Lab	3KE06	2011-2012
54	B.E. Computer Engg	112724510	Electronic Devices and circuits-lab	3KE07	2011-2012
55	B.E. Computer Engg	112724510	Computer Lab-I (Web Technology)	3KE08	2011-2012
56	B.E. Computer Engg	112724510	Data structure	4KE01	2011-2012
57	B.E. Computer Engg	112724510	Analog & Digital ICS	4KE02	2011-2012
58	B.E. Computer Engg	112724510	Object oriented programing	4KE03	2011-2012
59	B.E. Computer Engg	112724510	Assembly language programming	4KE04	2011-2012
60	B.E. Computer Engg	112724510	Theory of computation	4KE05	2011-2012
61	B.E. Computer Engg	112724510	Data structure-lab	4KE06	2011-2012
62	B.E. Computer Engg	112724510	Analog & Digital ICS-lab	4KE07	2011-2012
63	B.E. Computer Engg	112724510	Object oriented programing-lab	4KE08	2011-2012
64	B.E. Computer Engg	112724510	Assembly language programming-lab	4KE09	2011-2012
65	B.E. Computer Engg	112724510	Data Communication	5KE01	2012-2013
66	B.E. Computer Engg	112724510	File structure and data processing	5KE02	2012-2013




  
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67	B.E. Computer Engg	112724510	System Software	5KE03	2012-2013
68	B.E. Computer Engg	112724510	Switching theory and logic design	5KE04	2012-2013
69	B.E. Computer Engg	112724510	Free Elective-I (Production Mangement)	5FEME05	2012-2013
70	B.E. Computer Engg	112724510	Communication skills	5KE06	2012-2013
71	B.E. Computer Engg	112724510	System Software-lab	5KE07	2012-2013
72	B.E. Computer Engg	112724510	Switching theory and logic design-lab	5KE08	2012-2013
73	B.E. Computer Engg	112724510	Communication skills-lab	5KE09	2012-2013
74	B.E. Computer Engg	112724510	Operating system	6KE01	2012-2013
75	B.E. Computer Engg	112724510	Database System	6KE02	2012-2013
76	B.E. Computer Engg	112724510	Computer resource management	6KE03	2012-2013
77	B.E. Computer Engg	112724510	Computer Architecture	6KE04	2012-2013
78	B.E. Computer Engg	112724510	Free elective II: Introduction to Wireless Technology	6FEEXT5	2012-2013
79	B.E. Computer Engg	112724510	Professional Ethics	6KE06	2012-2013
80	B.E. Computer Engg	112724510	Operating system-lab	6KE07	2012-2013
81	B.E. Computer Engg	112724510	Database System-lab	6KE08	2012-2013
82	B.E. Computer Engg	112724510	Computer lab-II (Hardware)	6KE09	2012-2013
83	B.E. Computer Engg	112724510	Signal And System	7KE01	2013-2014
84	B.E. Computer Engg	112724510	Computer Networks	7KE02	2013-2014
85	B.E. Computer Engg	112724510	Microprocessor and Interfacing	7KE03	2013-2014
86	B.E. Computer Engg	112724510	Mobile computing	7KE04	2013-2014
87	B.E. Computer Engg	112724510	Professional Elective-I : Computer Graphics	7KE05	2013-2014
88	B.E. Computer Engg	112724510	Computer Networks-lab	7KE06	2013-2014
89	B.E. Computer Engg	112724510	Microprocessor and Interfacing-lab	7KE07	2013-2014
90	B.E. Computer Engg	112724510	Mobile computing-lab	7KE08	2013-2014
91	B.E. Computer Engg	112724510	Project and seminar	7KE09	2013-2014
92	B.E. Computer Engg	112724510	Digital signal processing	8KE01	2013-2014
93	B.E. Computer Engg	112724510	Embedded system	8KE02	2013-2014
94	B.E. Computer Engg	112724510	Software Engg	8KE03	2013-2014
95	B.E. Computer Engg	112724510	Professional Elective-II : Multimedia technologies	8KE04	2013-2014
96	B.E. Computer Engg	112724510	Digital signal processing-lab	8KE05	2013-2014
97	B.E. Computer Engg	112724510	Embedded system -lab	8KE06	2013-2014
98	B.E. Computer Engg	112724510	Project and seminar	8KE07	2013-2014
99	B.E.Elect.Tel.Comm. Engg	112737210	Computer Programming & Applications	3XT2	2011-2012
100	B.E.Elect.Tel.Comm. Engg	112737210	Electromagnetic Fields	3XT3	2011-2012
101	B.E.Elect.Tel.Comm. Engg	112737210	Electric Drives & Measurements	3XT4	2011-2012
102	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Components	3XT5	2011-2012




  
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103	B.E.Elect.Tel.Comm. Engg	112737210	Computer Programming & Applications-Lab	3XT6	2011-2012
104	B.E.Elect.Tel.Comm. Engg	112737210	Electric Drives & Measurements-Lab	3XT7	2011-2012
105	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Components Lab	3XT8	2011-2012
106	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engg-I	4XT1	2011-2012
107	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices And Circuits-I	4XT2	2011-2012
108	B.E.Elect.Tel.Comm. Engg	112737210	Network Analysis	4XT3	2011-2012
109	B.E.Elect.Tel.Comm. Engg	112737210	Industrial Management & Quality Control	4XT4	2011-2012
110	B.E.Elect.Tel.Comm. Engg	112737210	Instrumentation	4XT5	2011-2012
111	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices And Circuits-I-Lab	4XT6	2011-2012
112	B.E.Elect.Tel.Comm. Engg	112737210	Network Analysis -Lab	4XT7	2011-2012
113	B.E.Elect.Tel.Comm. Engg	112737210	Instrumentation-Lab	4XT8	2011-2012
114	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Circuits-II	5XT1	2012-2013
115	B.E.Elect.Tel.Comm. Engg	112737210	Power Electronics	5XT2	2012-2013
116	B.E.Elect.Tel.Comm. Engg	112737210	Control System Engg	5XT3	2012-2013
117	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engg -II	5XT4	2012-2013
118	B.E.Elect.Tel.Comm. Engg	112737210	Free Elective I: ENERGY AUDIT & MANAGEMENT	5FEEE5	2012-2013
119	B.E.Elect.Tel.Comm. Engg	112737210	Communication Skills	5XT6	2012-2013
120	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Circuits-II Lab	5XT7	2012-2013
121	B.E.Elect.Tel.Comm. Engg	112737210	Power Electronics Lab	5XT8	2012-2013
122	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engg -II Lab	5XT9	2012-2013
123	B.E.Elect.Tel.Comm. Engg	112737210	Communication Skills Lab	5XT10	2012-2013
124	B.E.Elect.Tel.Comm. Engg	112737210	Digital Integrated Circuits	6XT1	2012-2013
125	B.E.Elect.Tel.Comm. Engg	112737210	Linear Integrated Circuits	6XT2	2012-2013
126	B.E.Elect.Tel.Comm. Engg	112737210	Introduction to Microprocessor	6XT3	2012-2013
127	B.E.Elect.Tel.Comm. Engg	112737210	Digital Communication	6XT4	2012-2013
128	B.E.Elect.Tel.Comm. Engg	112737210	Free Elective II: Java Programming	6FEKE5	2012-2013
129	B.E.Elect.Tel.Comm. Engg	112737210	Integrated Circuits Lab	6XT6	2012-2013
130	B.E.Elect.Tel.Comm. Engg	112737210	Introduction to Microprocessor Lab	6XT7	2012-2013
131	B.E.Elect.Tel.Comm. Engg	112737210	Digital Communication Lab	6XT8	2012-2013

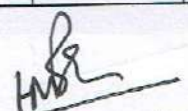


  
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132	B.E.Elect.Tel.Comm. Engg	112737210	Data Communication Network	7XT1	2013-2014
133	B.E.Elect.Tel.Comm. Engg	112737210	Microcontroller & Application	7XT2	2013-2014
134	B.E.Elect.Tel.Comm. Engg	112737210	Digital Signal Processing	7XT3	2013-2014
135	B.E.Elect.Tel.Comm. Engg	112737210	Professional Elective I: Artificial Intelligence	7XT04	2013-2014
136	B.E.Elect.Tel.Comm. Engg	112737210	Microcontroller & Application Lab	7XT5	2013-2014
137	B.E.Elect.Tel.Comm. Engg	112737210	Digital Signal Processing Lab	7XT6	2013-2014
138	B.E.Elect.Tel.Comm. Engg	112737210	Simulation Lab	7XT7	2013-2014
139	B.E.Elect.Tel.Comm. Engg	112737210	Project & Seminar	7XT8	2013-2014
140	B.E.Elect.Tel.Comm. Engg	112737210	UHF & Microwaves	8XT1	2013-2014
141	B.E.Elect.Tel.Comm. Engg	112737210	Electronics Circuit Design	8XT2	2013-2014
142	B.E.Elect.Tel.Comm. Engg	112737210	Wireless Communication	8XT3	2013-2014
143	B.E.Elect.Tel.Comm. Engg	112737210	Professional Elective II: /Digital Image Processing	8XT04	2013-2014
144	B.E.Elect.Tel.Comm. Engg	112737210	UHF & Microwaves Lab	8XT5	2013-2014
145	B.E.Elect.Tel.Comm. Engg	112737210	Electronics Circuit Design Lab	8XT6	2013-2014
146	B.E.Elect.Tel.Comm. Engg	112737210	Project & Seminar	8XT7	2013-2014
147	B.E. Mechanical Engg	112761210	Mechanics of Materials	3ME02	2011-2012
148	B.E. Mechanical Engg	112761210	Fluid Power -I	3ME03	2011-2012
149	B.E. Mechanical Engg	112761210	Engineering Thermodynamics	3ME04	2011-2012
150	B.E. Mechanical Engg	112761210	Manufacturing Process-I	3ME05	2011-2012
151	B.E. Mechanical Engg	112761210	Mechanics of Material	3ME06	2011-2012
152	B.E. Mechanical Engg	112761210	Fluid Power -I	3ME07	2011-2012
153	B.E. Mechanical Engg	112761210	Manufacturing Process-I	3ME08	2011-2012
154	B.E. Mechanical Engg	112761210	Basic Electrical Drives & Control	4ME01	2011-2012
155	B.E. Mechanical Engg	112761210	Engineering Metallurgy	4ME02	2011-2012
156	B.E. Mechanical Engg	112761210	Energy Conversion -I	4ME03	2011-2012
157	B.E. Mechanical Engg	112761210	Manufacturing Process -II	4ME04	2011-2012
158	B.E. Mechanical Engg	112761210	Machine Design & Drawing -I	4ME05	2011-2012
159	B.E. Mechanical Engg	112761210	Basic Electrical Drives & Control-Lab	4ME06	2011-2012
160	B.E. Mechanical Engg	112761210	Engineering Metallurgy-Lab	4ME07	2011-2012
161	B.E. Mechanical Engg	112761210	Energy Conversion -I-Lab	4ME08	2011-2012
162	B.E. Mechanical Engg	112761210	Manufacturing Process -II-Lab	4ME09	2011-2012
163	B.E. Mechanical Engg	112761210	Machine Design & Drawing -I-Lab	4ME10	2011-2012
164	B.E. Mechanical Engg	112761210	Production Technology	5ME01	2012-2013
165	B.E. Mechanical Engg	112761210	Heat Transfer	5ME02	2012-2013
166	B.E. Mechanical Engg	112761210	Mesurment Systems	5ME03	2012-2013
167	B.E. Mechanical Engg	112761210	Theory of Mechines - I	5ME04	2012-2013




  
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168	B.E. Mechanical Engg	112761210	Free Elective-I: Basics of Building Construction	5FECE05	2012-2013
169	B.E. Mechanical Engg	112761210	Production Technology-Lab	5ME06	2012-2013
170	B.E. Mechanical Engg	112761210	Heat Transfer-Lab	5ME07	2012-2013
171	B.E. Mechanical Engg	112761210	Mesurment Systems-Lab	5ME08	2012-2013
172	B.E. Mechanical Engg	112761210	Theory of Mechines - I-Lab	5ME09	2012-2013
173	B.E. Mechanical Engg	112761210	Computer Softwere Applications - I-Lab	5ME10	2012-2013
174	B.E. Mechanical Engg	112761210	Fluid Power - II	6ME01	2012-2013
175	B.E. Mechanical Engg	112761210	Computer Software Applications	6ME02	2012-2013
176	B.E. Mechanical Engg	112761210	Control System Engg	6ME03	2012-2013
177	B.E. Mechanical Engg	112761210	Theory of Mechines - II	6ME04	2012-2013
178	B.E. Mechanical Engg	112761210	Free Elective-II: Power Supply System	6FEME05	2012-2013
179	B.E. Mechanical Engg	112761210	Communication Skills	6ME06	2012-2013
180	B.E. Mechanical Engg	112761210	Fluid Power - II-Lab	6ME07	2012-2013
181	B.E. Mechanical Engg	112761210	Computer Software Applications - II-Lab	6ME08	2012-2013
182	B.E. Mechanical Engg	112761210	Theory of Mechines - II-Lab	6ME09	2012-2013
183	B.E. Mechanical Engg	112761210	Communication Skills-Lab	6ME10	2012-2013
184	B.E. Mechanical Engg	112761210	Machine Design & Drawing - II	7ME01	2013-2014
185	B.E. Mechanical Engg	112761210	Energy Conversion - II	7ME02	2013-2014
186	B.E. Mechanical Engg	112761210	Industrial Management & Costing	7ME03	2013-2014
187	B.E. Mechanical Engg	112761210	Automation Engg	7ME04	2013-2014
188	B.E. Mechanical Engg	112761210	Professional Elective-I:Tool Engg	7ME05	2013-2014
189	B.E. Mechanical Engg	112761210	Project & Seminar	7ME06	2013-2014
190	B.E. Mechanical Engg	112761210	Machine Design & Drawing - II-Lab	7ME07	2013-2014
191	B.E. Mechanical Engg	112761210	Energy Conversion - II-Lab	7ME08	2013-2014
192	B.E. Mechanical Engg	112761210	Automation Engg-Lab	7ME09	2013-2014
193	B.E. Mechanical Engg	112761210	Professional Elective-I:Tool Engg-Lab	7ME10	2013-2014
194	B.E. Mechanical Engg	112761210	Professional Elective-II: Automobile Engg	8ME01	2013-2014
195	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design	8ME02	2013-2014
196	B.E. Mechanical Engg	112761210	I.C. Engines	8ME03	2013-2014
197	B.E. Mechanical Engg	112761210	Operation Research Techniques	8ME04	2013-2014
198	B.E. Mechanical Engg	112761210	Project & Seminar	8ME05	2013-2014
199	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design-Lab	8ME06	2013-2014
200	B.E. Mechanical Engg	112761210	I.C. Engines-Lab	8ME07	2013-2014
201	B.E. Civil Engg	112719110	Strength Of Materials	3CE02	2011-2012
202	B.E. Civil Engg	112719110	Transportation Engg-I	3CE03	2011-2012



  
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203	B.E. Civil Engg	112719110	Building Construction AND Materials	3CE04	2011-2012
204	B.E. Civil Engg	112719110	Engineering Geology	3CE05	2011-2012
205	B.E. Civil Engg	112719110	Strength Of Materials - Lab	3CE06	2011-2012
206	B.E. Civil Engg	112719110	Transportation Engg - Lab	3CE07	2011-2012
207	B.E. Civil Engg	112719110	Building Construction AND Materials - Lab	3CE08	2011-2012
208	B.E. Civil Engg	112719110	Engineering Geology - Lab	3CE09	2011-2012
209	B.E. Civil Engg	112719110	Geotechnical Engg-I	4CE01	2011-2012
210	B.E. Civil Engg	112719110	Fluid Mechanics-I	4CE02	2011-2012
211	B.E. Civil Engg	112719110	Theory Of Structures-I	4CE03	2011-2012
212	B.E. Civil Engg	112719110	Surveying-I	4CE04	2011-2012
213	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I	4CE05	2011-2012
214	B.E. Civil Engg	112719110	Geotechnical Engg-I -Lab	4CE06	2011-2012
215	B.E. Civil Engg	112719110	Fluid Mechanics-I - Lab	4CE07	2011-2012
216	B.E. Civil Engg	112719110	Surveying-I - Lab	4CE08	2011-2012
217	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I - Lab	4CE09	2011-2012
218	B.E. Civil Engg	112719110	Reinforced Cement Concrete-II	5CE01	2012-2013
219	B.E. Civil Engg	112719110	Fluid Mechanics-II	5CE02	2012-2013
220	B.E. Civil Engg	112719110	Building Planning AND CAD	5CE03	2012-2013
221	B.E. Civil Engg	112719110	Surveying-II	5CE04	2012-2013
222	B.E. Civil Engg	112719110	Free Elective-I (Production Mangement)	5FEME05	2012-2013
223	B.E. Civil Engg	112719110	Communication Skills	5CE06	2012-2013
224	B.E. Civil Engg	112719110	Fluid Mechanics-II-Lab	5CE07	2012-2013
225	B.E. Civil Engg	112719110	Building Planning AND CAD- Lab	5CE08	2012-2013
226	B.E. Civil Engg	112719110	Surveying-II-Lab	5CE09	2012-2013
227	B.E. Civil Engg	112719110	Communication Skills-Lab	5CE10	2012-2013
228	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming	6CE01	2012-2013
229	B.E. Civil Engg	112719110	Structural Design-I	6CE02	2012-2013
230	B.E. Civil Engg	112719110	Water Resources Engg-I	6CE03	2012-2013
231	B.E. Civil Engg	112719110	Transportation Engg-II	6CE04	2012-2013
232	B.E. Civil Engg	112719110	Free Elective-II(Non conventional energy system)	6FEME05	2012-2013
233	B.E. Civil Engg	112719110	Estimating AND Costing	6CE06	2012-2013
234	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming-Lab	6CE07	2012-2013
235	B.E. Civil Engg	112719110	Structural Design-I-Lab	6CE08	2012-2013
236	B.E. Civil Engg	112719110	Estimating AND Costing-Lab	6CE09	2012-2013
237	B.E. Civil Engg	112719110	Minor Project-Lab	6CE10	2012-2013
238	B.E. Civil Engg	112719110	Theory Of Structures-II	7CE01	2013-2014




*[Handwritten Signature]*

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239	B.E. Civil Engg	112719110	Geotechnical Engg-II	7CE02	2013-2014
240	B.E. Civil Engg	112719110	Structural Design-II	7CE03	2013-2014
241	B.E. Civil Engg	112719110	Environmental Engg-I	7CE04	2013-2014
242	B.E. Civil Engg	112719110	Professional Elective-I: Advanced Earthquake Engg	7CE05	2013-2014
243	B.E. Civil Engg	112719110	Theory Of Structures-II - Lab	7CE06	2013-2014
244	B.E. Civil Engg	112719110	Geotechnical Engg-II - Lab	7CE07	2013-2014
245	B.E. Civil Engg	112719110	Structural Design-II - Lab	7CE08	2013-2014
246	B.E. Civil Engg	112719110	Project and Seminar	7CE09	2013-2014
247	B.E. Civil Engg	112719110	Water Resources Engg-II	8CE01	2013-2014
248	B.E. Civil Engg	112719110	Environmental Engg-II	8CE02	2013-2014
249	B.E. Civil Engg	112719110	Project Planning AND Management	8CE03	2013-2014
250	B.E. Civil Engg	112719110	Professional Elective-II: Advanced Waste Water AND Industrial Waste Treatment	8CE04	2013-2014
251	B.E. Civil Engg	112719110	Water Resources Engg-II - Lab	8CE05	2013-2014
252	B.E. Civil Engg	112719110	Environmental Engg-II - Lab	8CE06	2013-2014
253	B.E. Civil Engg	112719110	Project AND Seminar	8CE07	2013-2014



  
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**Dr. Hemant M. Baradkar**

M.Tech. (Electronics), Ph.D. (E & TC. Engg.)  
**Principal**

**Dr. Shital A. Watile**

M.Sc., Ph.D.  
**Secretary**

**1.3.2 Average percentage of courses that include experiential learning through project work/field Academic Year 2016-17**

Sr. No.	Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Project Work	Field work	Internship
1	B.E. Electrical Engg	112729310	Network Analysis	3EE02	✓		
2	B.E. Electrical Engg	112729310	Energy Resources & Generation	3EE03	✓		
3	B.E. Electrical Engg	112729310	Electronic Devices & Circuits	3EE04	✓		✓
4	B.E. Electrical Engg	112729310	Electrical Measurement & Instrumentation	3EE05	✓		✓
5	B.E. Electrical Engg	112729310	Network Analysis - Lab	3EE06	✓		
6	B.E. Electrical Engg	112729310	Electronic Devices & Circuits – Lab	3EE07	✓		✓
7	B.E. Electrical Engg	112729310	Electrical Measurement & Instrumentation-Lab	3EE08	✓		✓
8	B.E. Electrical Engg	112729310	Electrical Machine-I	4EE01	✓		✓
9	B.E. Electrical Engg	112729310	Electromagnetic Theory	4EE02	✓		
10	B.E. Electrical Engg	112729310	Analog & Digital Circuits	4EE03	✓		
13	B.E. Electrical Engg	112729310	Electrical Machine-I-Lab	4EE06	✓		✓
14	B.E. Electrical Engg	112729310	Analog & Digital Circuits - Lab	4EE07	✓		
16	B.E. Electrical Engg	112729310	Control Systems-I	5EE01	✓		
17	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller	5EE02	✓		✓
18	B.E. Electrical Engg	112729310	Electrical Machines-II	5EE03	✓		✓
19	B.E. Electrical Engg	112729310	Signals & Systems	5EE04	✓		

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21	B.E. Electrical Engg	112729310	Communication Skills	5EE06	✓		
22	B.E. Electrical Engg	112729310	Control Systems- Lab	5EE07	✓		
23	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller - Lab	5EE08	✓		✓
24	B.E. Electrical Engg	112729310	Electrical Machines-II – Lab	5EE09	✓		✓
25	B.E. Electrical Engg	112729310	Communication Skills - Lab	5EE10	✓		
26	B.E. Electrical Engg	112729310	Electrical Power-I	6EE01	✓		✓
27	B.E. Electrical Engg	112729310	Optimization Techniques	6EE02	✓		
28	B.E. Electrical Engg	112729310	Power Electronics	6EE03	✓		
29	B.E. Electrical Engg	112729310	Computer Aided Machine Design	6EE04	✓		✓
30	B.E. Electrical Engg	112729310	Free Elective-II : Electronic Test Instruments - Analog & Digital	6FEEXT 5	✓		✓
31	B.E. Electrical Engg	112729310	Electrical Energy Utilization	6EE06	✓		✓
32	B.E. Electrical Engg	112729310	Power Electronics - Lab	6EE07	✓		✓
33	B.E. Electrical Engg	112729310	Computer Aided Machine Design - Lab	6EE08	✓		
34	B.E. Electrical Engg	112729310	Electrical Energy Utilization - Lab	6EE09	✓		
35	B.E. Electrical Engg	112729310	Control System-II	7EE01	✓		
36	B.E. Electrical Engg	112729310	Power System Operation & Control	7EE02	✓		
37	B.E. Electrical Engg	112729310	Electrical Power-II	7EE03	✓		✓
38	B.E. Electrical Engg	112729310	Switchgear & Protection	7EE04	✓		✓
39	B.E. Electrical Engg	112729310	Professional Elective-I : Computer Methods in Power System Analysis	7EE05	✓		✓
40	B.E. Electrical Engg	112729310	Project & Seminar	7EE06	✓		✓
41	B.E. Electrical Engg	112729310	Electrical Power-II - Lab	7EE07	✓		✓
42	B.E. Electrical Engg	112729310	Switchgear & Protection - Lab	7EE08	✓		✓
43	B.E. Electrical Engg	112729310	Power System Stability	8EE01	✓		✓




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44	B.E. Electrical Engg	112729310	High Voltage Engineering	8EE02	✓		
45	B.E. Electrical Engg	112729310	Digital Signal Processing	8EE03	✓		
46	B.E. Electrical Engg	112729310	Professional Elective-II : Electric Drives & Control	8EE04	✓		
47	B.E. Electrical Engg	112729310	Project & Seminar	8EE05	✓		
48	B.E. Electrical Engg	112729310	Digital Signal Processing - Lab	8EE06	✓		✓
49	B.E. Computer Engg	112724510	Programing Methodology	3KE02	✓		✓
50	B.E. Computer Engg	112724510	Electronic Devices and circuits	3KE03	✓		✓
51	B.E. Computer Engg	112724510	Discret structure	3KE04	✓		✓
52	B.E. Computer Engg	112724510	Computer organization	3KE05	✓		✓
53	B.E. Computer Engg	112724510	Programing Methodology-Lab	3KE06	✓		✓
54	B.E. Computer Engg	112724510	Electronic Devices and circuits-lab	3KE07	✓		
55	B.E. Computer Engg	112724510	Computer Lab-I (Web Technology)	3KE08	✓		
56	B.E. Computer Engg	112724510	Data structure	4KE01	✓		✓
57	B.E. Computer Engg	112724510	Analog & Digital ICS	4KE02	✓		✓
58	B.E. Computer Engg	112724510	Object oriented programing	4KE03	✓		✓
59	B.E. Computer Engg	112724510	Assembly language programming	4KE04	✓		
60	B.E. Computer Engg	112724510	Theory of computation	4KE05	✓		
61	B.E. Computer Engg	112724510	Data structure-lab	4KE06	✓		
62	B.E. Computer Engg	112724510	Analog & Digital ICS-lab	4KE07	✓		
63	B.E. Computer Engg	112724510	Object oriented programing-lab	4KE08	✓		✓
64	B.E. Computer Engg	112724510	Assembly language programming-lab	4KE09	✓		✓
65	B.E. Computer Engg	112724510	Data Communication	5KE01	✓		✓
66	B.E. Computer Engg	112724510	File structure and data processing	5KE02	✓		✓



  
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67	B.E. Computer Engg	112724510	System Software	5KE03	✓		
68	B.E. Computer Engg	112724510	Switching theory and logic design	5KE04	✓		
69	B.E. Computer Engg	112724510	Free Elective-I (Production Mangement)	5FEME05	✓		
70	B.E. Computer Engg	112724510	Communication skills	5KE06	✓		
71	B.E. Computer Engg	112724510	System Software-lab	5KE07	✓		✓
72	B.E. Computer Engg	112724510	Switching theory and logic design-lab	5KE08	✓		✓
73	B.E. Computer Engg	112724510	Communication skills-lab	5KE09	✓		✓
74	B.E. Computer Engg	112724510	Operating system	6KE01	✓		✓
75	B.E. Computer Engg	112724510	Database System	6KE02	✓		
76	B.E. Computer Engg	112724510	Computer resource management	6KE03	✓		
77	B.E. Computer Engg	112724510	Computer Architecture	6KE04	✓		✓
78	B.E. Computer Engg	112724510	Free elective II: Introduction to Wireless Technology	6FEEXT 5	✓		
79	B.E. Computer Engg	112724510	Professional Ethics	6KE06	✓		✓
80	B.E. Computer Engg	112724510	Operating system-lab	6KE07	✓		✓
81	B.E. Computer Engg	112724510	Database System-lab	6KE08	✓		✓
82	B.E. Computer Engg	112724510	Computer lab-II (Hardware)	6KE09	✓		✓
83	B.E. Computer Engg	112724510	Signal And System	7KE01	✓		✓
84	B.E. Computer Engg	112724510	Computer Networks	7KE02	✓		✓
85	B.E. Computer Engg	112724510	Microprocessor and Interfacing	7KE03	✓		
86	B.E. Computer Engg	112724510	Mobile computing	7KE04	✓		
87	B.E. Computer Engg	112724510	Professional Elective-I : Computer Graphics	7KE05	✓		
88	B.E. Computer Engg	112724510	Computer Networks-lab	7KE06	✓		
89	B.E. Computer Engg	112724510	Microprocessor and Interfacing-lab	7KE07	✓		




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90	B.E. Computer Engg	112724510	Mobile computing-lab	7KE08	✓		
91	B.E. Computer Engg	112724510	Project and seminar	7KE09	✓		
92	B.E. Computer Engg	112724510	Digital signal processing	8KE01	✓		
93	B.E. Computer Engg	112724510	Embedded system	8KE02	✓		✓
94	B.E. Computer Engg	112724510	Software engineering	8KE03	✓		✓
95	B.E. Computer Engg	112724510	Professional Elective-II : Multimedia technologies	8KE04	✓		✓
96	B.E. Computer Engg	112724510	Digital signal processing-lab	8KE05	✓		✓
97	B.E. Computer Engg	112724510	Embedded system -lab	8KE06	✓		✓
98	B.E. Computer Engg	112724510	Project and seminar	8KE07	✓		
99	B.E.Elect.Tel. Comm. Engg	112737210	Computer Programming & Applications	3XT2	✓		
100	B.E.Elect.Tel. Comm. Engg	112737210	Electromagnetic Fields	3XT3	✓		
101	B.E.Elect.Tel. Comm. Engg	112737210	Electric Drives & Measurements	3XT4	✓		✓
102	B.E.Elect.Tel. Comm. Engg	112737210	Electronic Devices & Components	3XT5	✓		✓
103	B.E.Elect.Tel. Comm. Engg	112737210	Computer Programming & Applications-Lab	3XT6	✓		✓
104	B.E.Elect.Tel. Comm. Engg	112737210	Electric Drives & Measurements-Lab	3XT7	✓		✓
105	B.E.Elect.Tel. Comm. Engg	112737210	Electronic Devices & Components Lab	3XT8	✓		
106	B.E.Elect.Tel. Comm. Engg	112737210	Communication Engineering-I	4XT1	✓		✓
107	B.E.Elect.Tel. Comm. Engg	112737210	Electronic Devices And Circuits-I	4XT2	✓		✓
108	B.E.Elect.Tel. Comm. Engg	112737210	Network Analysis	4XT3	✓		
109	B.E.Elect.Tel. Comm. Engg	112737210	Industrial Management & Quality Control	4XT4	✓		✓
110	B.E.Elect.Tel. Comm. Engg	112737210	Instrumentation	4XT5	✓		✓
111	B.E.Elect.Tel. Comm. Engg	112737210	Electronic Devices And Circuits-I-Lab	4XT6	✓		
112	B.E.Elect.Tel. Comm. Engg	112737210	Network Analysis -Lab	4XT7	✓		




  
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113	B.E.Elect.Tel. Comm. Engg	112737210	Instrumentation-Lab	4XT8	✓		
114	B.E.Elect.Tel. Comm. Engg	112737210	Electronic Devices & Circuits-II	5XT1	✓		
115	B.E.Elect.Tel. Comm. Engg	112737210	Power Electronics	5XT2	✓		
116	B.E.Elect.Tel. Comm. Engg	112737210	Control System Engineering	5XT3	✓		
117	B.E.Elect.Tel. Comm. Engg	112737210	Communication Engineering -II	5XT4	✓		
118	B.E.Elect.Tel. Comm. Engg	112737210	Free Elective I: ENERGY AUDIT & MANAGEMENT	5FEEE5	✓		✓
119	B.E.Elect.Tel. Comm. Engg	112737210	Communication Skills	5XT6	✓		✓
120	B.E.Elect.Tel. Comm. Engg	112737210	Electronic Devices & Circuits-II Lab	5XT7	✓		✓
121	B.E.Elect.Tel. Comm. Engg	112737210	Power Electronics Lab	5XT8	✓		✓
122	B.E.Elect.Tel. Comm. Engg	112737210	Communication Engineering -II Lab	5XT9	✓		✓
123	B.E.Elect.Tel. Comm. Engg	112737210	Communication Skills Lab	5XT10	✓		
124	B.E.Elect.Tel. Comm. Engg	112737210	Digital Integrated Circuits	6XT1	✓		
125	B.E.Elect.Tel. Comm. Engg	112737210	Linear Integrated Circuits	6XT2	✓		✓
126	B.E.Elect.Tel. Comm. Engg	112737210	Introduction to Microprocessor	6XT3	✓		✓
127	B.E.Elect.Tel. Comm. Engg	112737210	Digital Communication	6XT4	✓		✓
128	B.E.Elect.Tel. Comm. Engg	112737210	Free Elective II: Java Programming	6FEKE5	✓		
129	B.E.Elect.Tel. Comm. Engg	112737210	Integrated Circuits Lab	6XT6	✓		
130	B.E.Elect.Tel. Comm. Engg	112737210	Introduction to Microprocessor Lab	6XT7	✓		✓
131	B.E.Elect.Tel. Comm. Engg	112737210	Digital Communication Lab	6XT8	✓		✓
132	B.E.Elect.Tel. Comm. Engg	112737210	Data Communication Network	7XT1	✓		✓
133	B.E.Elect.Tel. Comm. Engg	112737210	Microcontroller & Application	7XT2	✓		✓
134	B.E.Elect.Tel. Comm. Engg	112737210	Digital Signal Processing	7XT3	✓		
135	B.E.Elect.Tel. Comm. Engg	112737210	Professional Elective I: Artificial Intelligence	7XT04	✓		




  
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136	B.E.Elect.Tel. Comm. Engg	112737210	Microcontroller & Application Lab	7XT5	✓		
137	B.E.Elect.Tel. Comm. Engg	112737210	Digital Signal Processing Lab	7XT6	✓		
138	B.E.Elect.Tel. Comm. Engg	112737210	Simulation Lab	7XT7	✓		
139	B.E.Elect.Tel. Comm. Engg	112737210	Project & Seminar	7XT8	✓		
140	B.E.Elect.Tel. Comm. Engg	112737210	UHF & Microwaves	8XT1	✓		✓
141	B.E.Elect.Tel. Comm. Engg	112737210	Electronics Circuit Design	8XT2	✓		✓
142	B.E.Elect.Tel. Comm. Engg	112737210	Wireless Communication	8XT3	✓		✓
143	B.E.Elect.Tel. Comm. Engg	112737210	Professional Elective II: /Digital Image Processing	8XT04	✓		✓
144	B.E.Elect.Tel. Comm. Engg	112737210	UHF & Microwaves Lab	8XT5	✓		✓
145	B.E.Elect.Tel. Comm. Engg	112737210	Electronics Circuit Design Lab	8XT6	✓		✓
146	B.E.Elect.Tel. Comm. Engg	112737210	Project & Seminar	8XT7	✓		
147	B.E. Mechanical Engg	112761210	Mechanics of Materials	3ME02	✓		
148	B.E. Mechanical Engg	112761210	Fluid Power -I	3ME03	✓		
149	B.E. Mechanical Engg	112761210	Engineering Thermodynamics	3ME04	✓		✓
150	B.E. Mechanical Engg	112761210	Manufacturing Process-I	3ME05	✓		✓
151	B.E. Mechanical Engg	112761210	Mechanics of Material	3ME06	✓		✓
152	B.E. Mechanical Engg	112761210	Fluid Power -I	3ME07	✓		✓
153	B.E. Mechanical Engg	112761210	Manufacturing Process-I	3ME08	✓		
154	B.E. Mechanical Engg	112761210	Basic Electrical Drives & Control	4ME01	✓		
155	B.E. Mechanical Engg	112761210	Engineering Metallurgy	4ME02	✓		
156	B.E. Mechanical Engg	112761210	Energy Conversion -I	4ME03	✓		
157	B.E. Mechanical Engg	112761210	Manufacturing Process -II	4ME04	✓		✓
158	B.E. Mechanical Engg	112761210	Machine Design & Drawing -I	4ME05	✓		✓



  
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159	B.E. Mechanical Engg	112761210	Basic Electrical Drives & Control-Lab	4ME06	✓		✓
160	B.E. Mechanical Engg	112761210	Engineering Metallurgy-Lab	4ME07	✓		✓
161	B.E. Mechanical Engg	112761210	Energy Conversion -I-Lab	4ME08	✓		✓
162	B.E. Mechanical Engg	112761210	Manufacturing Process -II-Lab	4ME09	✓		✓
163	B.E. Mechanical Engg	112761210	Machine Design & Drawing -I-Lab	4ME10	✓		✓
164	B.E. Mechanical Engg	112761210	Production Technology	5ME01	✓		✓
165	B.E. Mechanical Engg	112761210	Heat Transfer	5ME02	✓		✓
166	B.E. Mechanical Engg	112761210	Mesurment Systems	5ME03	✓		
167	B.E. Mechanical Engg	112761210	Theory of Mechines - I	5ME04	✓		
168	B.E. Mechanical Engg	112761210	Free Elective-I: Basics of Building Construction	5FECE05	✓		
169	B.E. Mechanical Engg	112761210	Production Technology-Lab	5ME06	✓		
170	B.E. Mechanical Engg	112761210	Heat Transfer-Lab	5ME07	✓		✓
171	B.E. Mechanical Engg	112761210	Mesurment Systems-Lab	5ME08	✓		✓
172	B.E. Mechanical Engg	112761210	Theory of Mechines - I-Lab	5ME09	✓		✓
173	B.E. Mechanical Engg	112761210	Computer Software Applications - I-Lab	5ME10	✓		✓
174	B.E. Mechanical Engg	112761210	Fluid Power - II	6ME01	✓		✓
175	B.E. Mechanical Engg	112761210	Computer Software Applications	6ME02	✓		✓
176	B.E. Mechanical Engg	112761210	Control System Engineering	6ME03	✓		
177	B.E. Mechanical Engg	112761210	Theory of Mechines - II	6ME04	✓		
178	B.E. Mechanical Engg	112761210	Free Elective-II: Power Supply System	6FEME05	✓		
179	B.E. Mechanical Engg	112761210	Communication Skills	6ME06	✓		✓
180	B.E. Mechanical Engg	112761210	Fluid Power - II-Lab	6ME07	✓		✓
181	B.E. Mechanical Engg	112761210	Computer Software Applications - II-Lab	6ME08	✓		




*Handwritten Signature*  
Principal

Sree Narayana College of Engineering & Technology, Ami Road, Kinhi, Vayalimal



182	B.E. Mechanical Engg	112761210	Theory of Mechines - II-Lab	6ME09	✓		
183	B.E. Mechanical Engg	112761210	Communication Skills-Lab	6ME10	✓		✓
184	B.E. Mechanical Engg	112761210	Machine Design & Drawing - II	7ME01	✓		✓
185	B.E. Mechanical Engg	112761210	Energy Conversion - II	7ME02	✓		✓
186	B.E. Mechanical Engg	112761210	Industrial Management & Costing	7ME03	✓		✓
187	B.E. Mechanical Engg	112761210	Automation Engineering	7ME04	✓		✓
188	B.E. Mechanical Engg	112761210	Professional Elective-I: Tool Engineering	7ME05	✓		
189	B.E. Mechanical Engg	112761210	Project & Seminar	7ME06	✓		
190	B.E. Mechanical Engg	112761210	Machine Design & Drawing - II-Lab	7ME07	✓		
191	B.E. Mechanical Engg	112761210	Energy Conversion - II-Lab	7ME08	✓		
192	B.E. Mechanical Engg	112761210	Automation Engineering-Lab	7ME09	✓		
193	B.E. Mechanical Engg	112761210	Professional Elective-I: Tool Engineering-Lab	7ME10	✓		✓
194	B.E. Mechanical Engg	112761210	Professional Elective-II: Automobile Engineering	8ME01	✓		✓
195	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design	8ME02	✓		✓
196	B.E. Mechanical Engg	112761210	I.C. Engines	8ME03	✓		✓
197	B.E. Mechanical Engg	112761210	Operation Research Techniques	8ME04	✓		
198	B.E. Mechanical Engg	112761210	Project & Seminar	8ME05	✓		
199	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design-Lab	8ME06	✓		
200	B.E. Mechanical Engg	112761210	I.C. Engines-Lab	8ME07	✓		
201	B.E. Civil Engg	112719110	Strength Of Materials	3CE02	✓		
202	B.E. Civil Engg	112719110	Transportation Engineering-I	3CE03	✓		✓
203	B.E. Civil Engg	112719110	Building Construction AND Materials	3CE04	✓		✓
204	B.E. Civil Engg	112719110	Engineering Geology	3CE05	✓		✓
205	B.E. Civil Engg	112719110	Strength Of Materials - Lab	3CE06	✓		✓
206	B.E. Civil Engg	112719110	Transportation Engineering - Lab	3CE07	✓		✓




  
**Principal**  
 Jagadamba College of Engineering &  
 Technology, Arni Road, Kinhi, Yavatmal



207	B.E. Civil Engg	112719110	Building Construction AND Materials - Lab	3CE08	✓		✓
208	B.E. Civil Engg	112719110	Engineering Geology - Lab	3CE09	✓		✓
209	B.E. Civil Engg	112719110	Geotechnical Engineering-I	4CE01	✓		
210	B.E. Civil Engg	112719110	Fluid Mechanics-I	4CE02	✓		
211	B.E. Civil Engg	112719110	Theory Of Structures-I	4CE03	✓	✓	
212	B.E. Civil Engg	112719110	Sureveying-I	4CE04	✓	✓	
213	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I	4CE05	✓		
214	B.E. Civil Engg	112719110	Geotechnical Engineering-I -Lab	4CE06	✓		
215	B.E. Civil Engg	112719110	Fluid Mechanics-I - Lab	4CE07	✓		
216	B.E. Civil Engg	112719110	Surveying-I - Lab	4CE08	✓	✓	
217	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I - Lab	4CE09	✓		
218	B.E. Civil Engg	112719110	Reinforced Cement Concrete-II	5CE01	✓		
219	B.E. Civil Engg	112719110	Fluid Mechanics-II	5CE02	✓		✓
220	B.E. Civil Engg	112719110	Building Planning AND CAD	5CE03	✓		✓
221	B.E. Civil Engg	112719110	Surveying-II	5CE04	✓	✓	✓
222	B.E. Civil Engg	112719110	Free Elective-I (Production Mangement)	5FEME05	✓		✓
223	B.E. Civil Engg	112719110	Communication Skills	5CE06	✓		✓
224	B.E. Civil Engg	112719110	Fluid Mechanics-II-Lab	5CE07	✓		✓
225	B.E. Civil Engg	112719110	Building Planning AND CAD- Lab	5CE08	✓		✓
226	B.E. Civil Engg	112719110	Surveying-II-Lab	5CE09	✓	✓	✓
227	B.E. Civil Engg	112719110	Communication Skills-Lab	5CE10	✓		
228	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming	6CE01	✓		
229	B.E. Civil Engg	112719110	Structural Design-I	6CE02	✓		
230	B.E. Civil Engg	112719110	Water Resources Engineering-I	6CE03	✓	✓	
231	B.E. Civil Engg	112719110	Transportation Engineering-II	6CE04	✓	✓	
232	B.E. Civil Engg	112719110	Free Elective-II(Non conventional energy system)	6FEME05	✓		✓
233	B.E. Civil Engg	112719110	Estimating AND Costing	6CE06	✓		
234	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming-Lab	6CE07	✓		
235	B.E. Civil Engg	112719110	Structural Design-I-Lab	6CE08	✓		✓
236	B.E. Civil Engg	112719110	Estimating AND Costing-Lab	6CE09	✓		✓
237	B.E. Civil Engg	112719110	Minor Project-Lab	6CE10	✓	✓	✓
238	B.E. Civil Engg	112719110	Theory Of Structures-II	7CE01	✓		✓
239	B.E. Civil Engg	112719110	Geotechnical Engineering-II	7CE02	✓		✓
240	B.E. Civil Engg	112719110	Structural Design-II	7CE03	✓	✓	✓
241	B.E. Civil Engg	112719110	Environmental Engineering-I	7CE04	✓	✓	✓
242	B.E. Civil Engg	112719110	Professional Elective-I: Advanced Earthquake Engineering	7CE05	✓		
243	B.E. Civil Engg	112719110	Theory Of Structures-II - Lab	7CE06	✓		




  
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244	B.E. Civil Engg	112719110	Geotechnical Engineering-II - Lab	7CE07	✓		
245	B.E. Civil Engg	112719110	Structural Design-II - Lab	7CE08	✓		
246	B.E. Civil Engg	112719110	Project and Seminar	7CE09	✓	✓	✓
247	B.E. Civil Engg	112719110	Water Resources Engineering-II	8CE01	✓	✓	✓
248	B.E. Civil Engg	112719110	Environmental Engineering-II	8CE02	✓		✓
249	B.E. Civil Engg	112719110	Project Planning AND Management	8CE03	✓		✓
250	B.E. Civil Engg	112719110	Professional Elective-II: Advanced Waste Water AND Industrial Waste Treatment	8CE04	✓		✓
251	B.E. Civil Engg	112719110	Water Resources Engineering-II - Lab	8CE05	✓	✓	
252	B.E. Civil Engg	112719110	Environmental Engineering-II - Lab	8CE06	✓	✓	✓
253	B.E. Civil Engg	112719110	Project AND Seminar	8CE07	✓		



  
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 Principal



**Course Outcomes:**

After Completing this course, students will be able to:

1. Explain the construction and working of DC Machines.
2. Illustrate the different Characteristics, types, their applications and parallel Operation of D.C. Generators.
3. Demonstrate the various characteristics, starting, speed control and braking operation on DC motors
4. Analyze the performance of DC machines by conducting the various tests on it.
5. Determine the parameters of equivalent circuits, performance parameters of single phase transformer and merits & demerits of autotransformer
6. Explain the construction, working, different connections, applications and testing of three phase transformer.

**Unit I :**

**D.C. Machines:** Construction, Principle of Operation, EMF Equation, Torque Equation. Armature winding – Lap, wave, single layer, double layer. Armature Reaction and commutation, method of improving commutation.

**Unit II :**

**D.C. Generators:** Types, Characteristics and Applications of D. C. Generators, Parallel Operation of D.C. Generators, Introduction to testing of D. C. Generators as per Indian standard.

**Unit III :**

**D.C. Motors:** Types, Characteristics & Modified Characteristics, Applications of D.C. Motors. Starting, Electric Braking, Speed Control of DC Motors. Losses, efficiency and testing of DC Motors.

**Unit IV :**

**Single phase Transformer:** Working Operation, EMF Equation, and separation of core losses in to its component. Equivalent Circuit, Parallel Operation. Open Circuit, Short Circuit & Sumpner's test on transformer as per Indian standard. Single phase Autotransformer: - construction, working, merits, demerits and its application.

**Unit V :**

**Three Phase Transformer:** Construction, Working, Types, connections, vector group connections, open delta Connection, OC, SC, Heat run test, load test, magnetic balance, vector group test on three phase transformer.

**Unit VI :**

**Three Phase Transformer:** Three-winding transformer, On load & Off load tap changers, Scott Connection, Power transformer and Distribution transformer. Waveforms of no load current & inrush current phenomenon.

**Text Book:**

Electrical Machines by D P Kothari & I J Nagrath Published by Tata McGraw-Hill Book Comp. New Delhi.

**Reference Books:**

- 1) C. Dawes: Electrical Engineering, Vol.I: Direct current (IV Edition), (McGraw Hill Book Company)
- 2) H. Cotton: Advance Electrical Technology, (Wheeler publication)
- 3) Indian Standard Guide for testing DC Machine. IS: 9320-1979, (Indian Standards Institution, New Delhi.)
- 4) Indian Standard Specification for safety transformer. IS: 1416-1972, (Indian Standards Institution, New Delhi.)

## 3EE04/3 EP04 – ENERGY RESOURCES AND GENERATION

**Course Outcomes:**

A student, on completion of this course, will be able to:

1. Explain the operation of Thermal, Hydro, Nuclear and Diesel power plants.
2. Summarize solar energy conversion, solar radiation measuring instruments, wind energy conversion and their applications.
3. Outline the principle and operation of fuel cells, ocean & tidal energy conversion, and other non-conventional energy resources.
4. Determine the various factors and curves related to electrical load & generating plant.

**Unit I:**

Conventional and non conventional energy sources, Indian Energy Scenario.

**Thermal and hydro power plant:** Layout of Thermal power plant, Selection of site, working of various parts: Economizer, air preheater, condenser, cooling tower, ash & coal handling plant, advantages & disadvantages. Layout of Hydro power plant, classification of hydro power plant according to available head, nature of load, functions of different components and their working, mini and micro hydro-electric power generation, advantages & disadvantages.





**Unit II :**

**Nuclear and Diesel power plant:** nuclear fission and fusion, Layout of Nuclear power plant, Selection of site, Functions of different components of nuclear plant, types of nuclear reactors , advantages & disadvantages of different nuclear reactors, nuclear waste disposal., safety measures.  
Layout of Diesel power plant, functions of different components of diesel plant, advantages & disadvantages.

**Unit III :**

**Solar Energy and its measurement:** Solar cell, array & module, Solar constants, solar radiation at earth's surface, Solar radiation geometry, solar radiation measurement, estimation of average solar radiation, solar radiation on tilted surface, principle of solar energy conversion in to heat, types of solar collectors, energy balance equation and collector efficiency.

**Unit IV:**

a) **Fuel cells:** Chemistry applied to fuel cells, principle and operation ,classification and types of fuel cells, performance characteristics of fuel cells, classification of fuel cell system.

b) **Wind energy :**Basic principle of wind energy conversion, wind data and energy estimation, selection of site ,basic components of wind energy conversion system ,classification of WEC systems ,generating system, applications of wind energy.

**Unit V :**

**Ocean, Tidal & Other non-conventional energy resources:** Ocean energy resources, ocean energy routes, ocean thermal energy conversion, basic principle of tidal power, components of tidal power plants, operation methods of utilization of tidal energy, estimation of power and energy in single and double basin tidal system., Operating principles of energy from biomass, energy from biogas, geothermal energy, MHD power generation, energy from urban and rural waste.

**Unit VI :**

**Load-Generation factors:** connected load, maximum demand, demand factor, load factor, diversity factors, plant capacity and utilization factor, types of loads, load curve, chronological load curve, load duration curve, energy load curve, energy duration curve, load survey, base load and peak load station.

**Text Book:** Generation of electrical energy by B.R.Gupta, Eurasia Publishing House, New Delhi.

**Reference Books:**

1. Non conventional energy resources. By G.D.Rai, Khanna Publishers New Delhi
2. Solar energy by S.P.Sukhatme Tata McGraw Hill Publication
3. Principles of Power System by V.K.Mehta, S.Chand publication.
4. Conventional energy technology by S.B.Pandya, Tata McGraw Hill Publication.

3EE05/3 EP05ELECTRONIC DEVICES AND CIRCUITS

**Course Outcomes:**

After successfully completing the course, the students will be able to :

1. Demonstrate the knowledge of semiconductor physics and PN Junction Diode
2. Analyze the rectifier and regulator circuits.
3. Analyze the operational parameters of BJT
4. Analyze various multistage amplifier circuits
5. Demonstrate the knowledge of JFET, MOSFET, UJT and their operational parameters

**UNIT-I:**

**P-N Junction diode theory.** Energy bands in intrinsic and extrinsic silicon, carrier transport, diffusion current , drift current, mobility and resistivity, generation and recombination of carriers, PN junction diode , zener diode, zener diode as voltage regulator, Numericals based on voltage regulator (line and load regulation, Numericals based on resistivity, conductivity, mass action law)

**UNIT-II:**

Half wave, full wave center tapped full wave and bridge rectifier. Filters-C, LC and their analysis, clipping and clamping, Numericals based on clipping and clamping

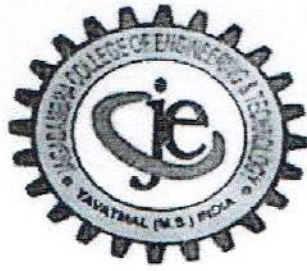
**UNIT-III:**

**Theory and Analysis of Bipolar Junction transistor.** 'H' Parameter, methods of biasing, their needs, 'Q' and stability factors, compensation techniques.



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## CERTIFICATE

This is to certify that the project report entitled

**“FOOT STEP POWER GENERATION USING  
PIEZOELECTRIC TRANSDUCER”**

Submitted by

Adarsh V. Gawai  
Pranshu S. Umale  
Rupesh M. Datey

Yogesh N. Suroshe  
Kanchan R. Khasale  
Ragini V. Jiotode

In a partial fulfillment of the requirements for the award of degree of Bachelor of Engineering in Electrical Engineering of Sant Gadge Baba Amravati University, Amravati and is bonafide work carried out and completed under my guidance and supervision during the session 2016-2017.

Prof. Dr. V. G. Neve  
(Head of Department)

Dr. H. M. Baradkar  
(Principal)

Prof. K. M. Kamble  
(Project Guide)

External Examiner



Dr. H. M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology Arni Road, Kinhi, Yavatma




## ABSTRACT

In this project, some of the shortcomings in the existing system have been proposed to be rectified. The advances have allowed numerous ways for power harvesting systems in practical applications in order to meet the power demand. The use of piezoelectric crystal is to generate electric output from surrounding vibrations. Piezoelectric materials have a crystalline structure that they can convert mechanical energy into electrical charge and is vice-versa. These materials have the ability to absorb mechanical energy from their surroundings, usually ambient vibration, and transform it into electrical energy that can be used to power other devices.

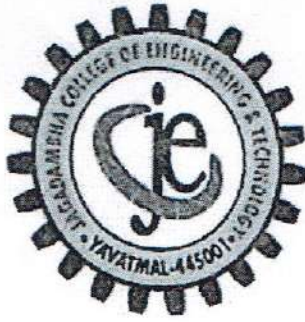
The produced electrical energy from the piezoelectric crystal is very low in the order of 2-3volts and is initially stored in a 2v rechargeable battery through a charge controller, since it is not possible to charge a 12V battery through crystal output. In order to increase the voltage, the boost converter circuit is used. The use of boost converter is to increase the level of voltage ranges about 12V and is stored in a 12V battery. In order to supply power to the load an inverter circuit is required by which the generated voltage is fed to the CFL lamp. This project can be implemented in dense populated areas like railway station, bus stands etc. where more amount of vibration energy will be obtained. As a result of completing the above procedure or technique we made ourselves able to design such compatible system through which we could run our home appliances through AC output.

As our main purpose was to charge the battery through DC output and then by inverting it into AC for normal common usage. Thus as a result we have concluded that these types of designs and techniques of power generating systems are very useful and handy in order to match the supply and demand of energy globally as well.



  
Dr. Hemant M. Baradkar  
Principal  
Jagdamba College of Engineering &  
Technology Anil Road, Kinkhi, Yavatim





## CERTIFICATE

This is to certify that the project Report entitled

**“ENERGY METER THEFT DETECTION”**

Submitted by

Ms. Shrawani U. Bire

Ms. Samiksha R. Kuratkar

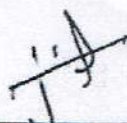
Mr. Anuj S. Tundalwar

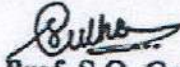
Ms. Sneha M. Kalekar

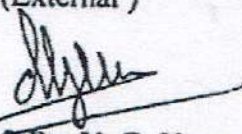
Mr. Avinash D. Pajgade


Mr. Vaibhav B. Godhankar

in a partial fulfillment of the requirements for the award of degree of Bachelor of Engineering in Electrical Engineering of Sant Gadge Baba Amravati University, Amravati and is bonafide work carried out and completed under my guidance and supervision during the session 2016-2017.

Prof.   
(External)

  
Prof. S.O. Gulhane  
( Project Guide )

  
Prof. Dr. V. G. Neve  
( Head of Department )

  
Dr. H. M. Baradkar  
(Principal)  
Dr. Hemant M. Baradkar  
Principal

Jagadamba College of Engineering & Technology, Am Road, Kinhi, Yavatmal





## ABSTRACT

The Aim of our project is to minimize the theft of the electricity, because of the theft the organisation like MSEB, is in under loss. So for improvement of quality of power and elimination of theft, our energy meter theft detection circuit is usable.

The energy meter theft detection system detect the theft occur in domestic area. By using GSM model, MSEB monitor each and every energy meter. If any customer try to do theft, then sensor sense the theft and signal provide to GSM model. GSM model gives message to the MSEB and the theft will be detected.

In this circuit, the single phase, two wire supply is given to the energy meter and the optocoupler is connected after the energy meter. It separate the ac and dc supply. The various sensors are used to detect the fault.



  
Dr. Hement M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology Amal Road, Kinhi, Yavatm





## CERTIFICATE

This is to certify that the project Report entitled

**“ DETECTION AND CLASSIFICATION OF TRANSMISSION  
LINE FAULTS USING WAVELET TRANSFORM ”**

Submitted by

Ms. Pallavi S. Dambhare.

Mr. Akshay V. Ghavat

Mr. Ritesh B. Uike

Ms. Ankita A. Punse

Mr. Amit B. Petkar

Ms. Dhanashri G. Gaynar

In a partial fulfilment of the requirements for the award of degree of Bachelor of Engineering in Electrical Engineering of Sant Gadge Baba Amravati University, Amravati and is bonafide work carried out and completed under my guidance and supervision during the session 2016-2017.

Prof. Dr. V. G. Neve  
( Head of Department )

Dr. H. M. Baradkar  
(Principal)

Prof. A. V. Mohitkar  
(Project Guide)

External Examiner

Dr. Hemant M. Baradkar  
Principal

Jagadamba College of Engineering &  
Technology, Arni Road, Kushi, Yavatmal





## ABSTRACT

Proper detection of various faults occurring on the transmission line is very essential. In this project, detection and classification of some these faults is done based on the information conveyed by the wavelet analysis of power systems transients.


Maximum norm values, maximum detail coefficient, energy of the current signals are calculated from the Wavelet Toolbox in MATLAB/Simulink. Maximum normal value and energy of the signals detects the fault and threshold detail coefficient classifies the fault into different types such **L-G, L-L, L-L-G, L-L-L.**

Wavelet Transform decomposes current and voltage signals into high and low frequency components using Quadrature Mirror Filter.

High frequency components gives the detail coefficients, while low frequency components gives approximation components

Detail coefficients detects and classify the various transmission line faults and approximation coefficients estimates the pharos for all signals, through which fault impedance can be computed.



  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology Arni Road, Kinki, Yavatm



- Unit II: Data link Layer (Hours: 6)**  
Data Link Layer: Introduction, Nodes & Links, Services, Two categories of link, Two sub-layers, Error detection and correction: Introduction, Block Coding, Cyclic codes, Checksum, Forward Error Correction, Data link control: DLC services, Data-Link Layer Protocol, HDLC, Point-To-Point Protocol, Media Access Control (MAC): Random Access, Controlled Access, Channelization.
- Unit III: Network Layer (Hours: 7)**  
Introduction to Network layer Network Layer Services: Packetizing, Routing and Forwarding, Other Services Packet Switching: Datagram Approach: Connectionless Service, Virtual-Circuit Approach: Connection-Oriented Service, Network Layer performance: Delay, Throughput, Packet Loss, Congestion Control, IPV4 Address: Address Space, Classful Addressing, Classless Addressing, Dynamic Host Configuration Protocol (DHCP), Network Address Resolution (NAT), Forwarding of IP packets: Forwarding Based on Destination Address, Forwarding Based on Label, Routers as Packet Switches
- Unit IV: Network Layer Protocol (Hours: 7)**  
Network Layer Protocols: Internet Protocol (IP), Datagram Format, Fragmentation, Security of IPv4 Datagrams, ICMPV4: Messages, Debugging Tools, ICMP Checksum, Mobile IP: Addressing, Agents, Three Phases, Inefficiency in Mobile IP, Routing algorithms: Distance Vector routing, Link State Routing, IPV6 Addressing: Representation, Address Space, Address Space Allocation, Auto configuration, Renumbering, Transition from IPV4 to IPV6: Strategies, Use of IP Addresses
- Unit V: Transport Layer (Hours: 6)**  
Introduction to Transport layer: Introduction, Transport-Layer Services, Connectionless and Connection-Oriented Protocols, Transport-Layer Protocols: Simple Protocol, Stop-and-Wait Protocol, Go-Back-N Protocol (GBN), Selective-Repeat Protocol, Bidirectional Protocols: Piggy backing, User Datagram Protocols: User Datagram, UDP Services, UDP Applications, Transmission Control Protocol: TCP Services, TCP Features, Segment, A TCP Connection, State Transition Diagram, Windows in TCP, Flow Control, Error Control, TCP Congestion Control, TCP Timers, Options, SCTP: SCTP Services, SCTP Features
- Unit VI: Application layer (Hours: 7)**  
Introduction to Application layer: Providing Services, Application-Layer Paradigms, Client-Server Programming: Application Programming Interface, Using Services of the Transport Layer, Iterative Communication Using UDP, Iterative Communication Using TCP, Concurrent Communication, World wide web and HTTP: World Wide Web, Hyper-Text Transfer Protocol (HTTP) FTP: Two Connections, Control Connection, Data Connection, Security for FTP, Electronic Mail: Architecture, Web-Based Mail, E-Mail Security, Domain Name System (DNS): Name Space, DNS in the Internet, Resolution, Caching, Resource Records, DNS Messages, Registrars, Security of DNS, Network Management: Introduction, Configuration Management, Fault Management, Performance Management, Security Management, Accounting Management, SNMP: Managers and Agents, Management Components, ASN.1: Language Basics, Data Types, Encoding.

**Text Book:** Behrouz A. Forouzan: Data Communication and Networking, (5/e) (TMH).

**Reference Books:**

1. William Stallings: Data & Computer Communications, 6/e, Pearson Education
2. William L. Schweber : Data Communication, McGraw Hill
3. J.Freyy : Computer Communication & Networks, AEW Press
4. D. Corner: Computer Networks & Internet, Pearson Education.

**4KS03 OPERATING SYSTEM**

**Course Pre-requisite:** Discrete Structures, Data Structure, Any programming Language


**Course Objectives:**

1. To make students aware of the kernel and shell structure of the operating systems.
2. To make students aware of the purpose, structure and functions of operating systems
3. To equip students with understanding of the various scheduling algorithms in OS.
4. To make students aware of understanding of memory management in different OS.

**Course Outcomes :** On completion of the course, the students will be able to

1. Explain memory management issues like external fragmentation, internal fragmentation.
2. Illustrate multithreading and its significance.
3. List various protection and security mechanisms of OS.
4. Analyze and solve the scheduling algorithms.
5. Analyze the deadlock situation and resolve it.
6. Compare various types of operating systems



  
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- Unit I: Introduction to OS (Hours: 7)**  
Introduction: Operating System definition, OS Evolution, Components and Services, Process Concept, Process Scheduling, Operations on Processes, Cooperating Processes, Interprocess Communication, Threads Overview, Multithreading Models, Threading Issues, Java Threads
- Unit II: Process Scheduling (Hours: 7)**  
Foundation and Scheduling objectives, Types of Schedulers, Scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time; Scheduling algorithms: Pre-emptive and Non pre-emptive, FCFS, SJF, RR, Priority, Multilevel Queue, Multilevel Feedback Queue Scheduling
- Unit III: Process Synchronization (Hours: 6)**  
Process Synchronization Basics: The Critical-Section Problem, Synchronization Hardware, Semaphores, Monitors, Deadlocks: Definition & Characterization, Deadlocks Prevention, Avoidance, Detection and Recovery from Deadlock
- Unit IV: Memory Management (Hours: 7)**  
Memory Management Background, Swapping, Contiguous Memory Allocation Schemes, Paging, Segmentation, Virtual Memory Management: Background, Demand paging scheme, Process Creation, Page Replacement Policies, Allocation of Frames, Thrashing
- Unit V: Unit Title: File System (Hours: 7)**  
File-System Interface; Directory Structure, File-System Mounting, File Sharing & Protection, File-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management, File Recovery
- Unit VI: Unit Title: I/O System (Hours: 6)**  
I/O Systems : Overview, I/O Hardware, Application I/O Interface, Kernel I/O Subsystem, Transforming I/O to Hardware Operations , Disk Scheduling, Disk Management, Swap-Space Management, RAID Structure.

**Text Book :** Avi Silberschatz, P.B.Galvin, G.Gagne: "Operating System Concepts" (9/e) John-Wiley & Sons.

**Reference Books:**

1. A.S.Tanenbaum "Modern Operating Systems" Pearson Education.
2. William Stallings "Operating Systems" Prentice-Hall.
3. D. M. Dhamdhare "Operating Systems" Tata McGraw-Hill.
4. P. Balkrishna Prasad: "Operating Systems" Scitech Publications (I) Pvt. Ltd.

**4KS04 MICROPROCESSOR & ASSEMBLY LANGUAGE PROGRAMMING**

**Course Pre-requisite:** Computer Programming and Computer Fundamentals

**Course Objectives:**

1. To explore 8086 microprocessor and its architecture.
2. To introduce interfacing techniques of 8086 microprocessor.
3. To introduce basics of Internet of Things

**Course Outcomes :** On completion of the course, the students will be able to

1. Describe 8086 microprocessor and its architecture; also understand instruction processing during the fetch-decode-execute cycle.
2. Design and Test assembly language programs using 8086 microprocessor instruction set.
3. Demonstrate the implementation of standard programming constructs, including control structures and functions, in assembly language.
4. Illustrate and realize the Interfacing of memory & various I/O devices with 8086 microprocessor.
5. Explain the basic concepts of Internet of Things

- Unit I: 8086 Architecture (Hours: 7)**  
8086 architecture and pin configuration, Software model of 8086 microprocessor. Memory addresses space and data organization. Data types. Segment registers, memory segmentation. IP & Data registers, Pointer, Index registers. Memory addresses generation.
- Unit II: 8086 Instruction Set (Hours: 7)**  
8086 Instruction set overview, addressing modes. 8086 instruction formats. 8086 programming: Integer instructions and computations: Data transfer instructions, Arithmetic instructions and their use in 8086 programming.
- Unit III: 8086 Instruction Set (Hours: 6)**  
8086 programming: Rotate instructions. Shift and rotate instructions and their use in 8086 programming. 8086 flag register and Flag control instructions, compare instruction, control flow and jump instructions. Loops & loop handling instructions. 8086 programming using these instructions.





- Unit IV: Pushdown Automata (Hours: 8)**  
Introduction and Definition of PDA, Construction of PDA, Acceptance of CFL, Equivalence of CFL and PDA: Inter-conversion, Introduction of DCFL and DPDA, Enumeration of properties of CFL, Context Sensitive Language, Linear Bounded Automata.
- Unit V: Turing Machines (Hours: 8)**  
Formal definition of a Turing Machine, Design of TM, Computable Functions, Church's hypothesis, Counter machine, Variants of Turing Machines: Multi-tape Turing machines, Universal Turing Machine.
- Unit VI: Decidability and Un-Decidability (Hours: 8)**  
Decidability of Problems, Halting Problem of TM, Un-Decidability: Recursive enumerable language, Properties of recursive & non-recursive enumerable languages, Post Correspondence Problem, Introduction to Recursive Function Theory.

**Text Books:**

1. Hopcraft H.E. & Ullman J: Introduction to Automata Theory, Languages and Computation.
2. Peter Linz: An Introduction to Formal Languages and Automata.

**Reference Books:**

1. Rajesh K. Shukla: Theory of Computation, CENGAGE Learning, 2009.
2. K V N Sunitha and N Kalyani: Formal Languages and Automata Theory, McGraw Hill, 2010
3. Lewis H.P. and Papadimition C.H.: Elements of Theory of Computation
4. Mishra & Chandrashekharan: Theory of Computation
5. C.K.Nagpal: Formal Languages and Automata Theory, Oxford University Press, 2011.
6. VivekKulkarni : Theory of Computation, OUP India, 2013

**4KE06 COMPUTER NETWORK - LAB**

**Course Pre-requisite:** Computer and Data Communication Requirements

**Course Objectives:**

1. To understand the working principle of various communication protocols
2. To understand and analyze the signal flow in a digital communication system.
3. To analyze error performance of a digital communication system in presence of noise and other interferences.
4. To evaluate the errors using various error detection & correction techniques.
5. To understand network based protocols in data communication and networking.

**Course Outcomes :** On completion of the course, the students will be able to

1. Analyze performance of various communication protocols
2. Implement Configure various network protocols.
3. Compare IP Address classes of networks.

**List of Experiments:**

This is a sample list of Experiments; **minimum 12 experiments** are to be performed covering the entire syllabus. At least two experiments should be beyond syllabi based on learning of syllabi (Apply)

1. To study various LAN topologies and their creation using network devices, cables and computers.
2. To connect the computers in Local Area Network.
3. Familiarization with Networking Components and devices: LAN Adapters, Hubs, Switches, Routers etc.
4. Write a program of bit stuffing used by Data Link Layer
5. Write a program to implement CRC(Cyclic Redundancy Check)
6. Write a program to implement Checksum
7. Write a program to implement Sliding window
8. Configure Internet connection and use IP-Config, PING / Tracer and Net stat utilities to debug the network issues.
9. Configuration of TCP/IP Protocols in Windows and Linux.
10. Transfer files between systems in LAN using FTP Configuration, install Print server in a LAN and share the printer in a network.
11. Write a C Program to determine if the IP Address is in Class A, B, C, D, or E
12. Write a C Program to translate Dotted Decimal IP Address into 32 Bit Address.
13. Configure Host IP, Subnet Mask and Default Gateway in a System in LAN(TCP/IP Configuration)

**4KE07 OPERATING SYSTEM - LAB**

**Course Pre-requisite:** Basic computer programming

**Course Objectives:**

1. To make students aware of the kernel and shell structure of the operating systems.
2. To make students aware of the purpose, structure and functions of operating systems
3. To equip students with understanding of the various scheduling algorithms in OS.
4. To make students aware of understanding of memory management in different OS.



*[Signature]*  
Principal  
Jadavmaha College of Engineering &  
Technology, Kinhi, Yavatmal



# Certificate

Certified that this B.E. Seminar Report titled

**“Wireless Mouse & Keyboard Using Smartphone”**

By

Miss. Rajlaxmi C. Gade

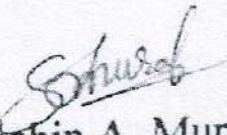
Miss. Vaishnavi B. Shinde

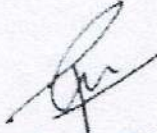
Miss. Shubhangi S. Shirfule

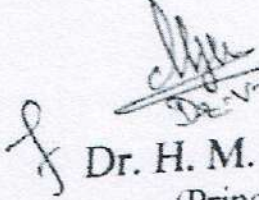
Miss. Sanskruti U. Pakale

Mr. Vitthal S. Pariskar

of final year (B.E) during the academic year 2016-2017 is for the partial fulfillment for requirement of the award of the degree of Bachelor of Engineering in Computer Engineering under Sant Gadge Baba Amravati University, Amravati.

  
Prof. Sachin A. Murab  
(Guide)

  
Prof. P. D. Thakare  
(Head of Department)


  
Dr. H. M. Baradkar  
(Principal)  
Date: 29/05/17



Department of Computer Engineering  
Jagadambha College of Engineering & Technology,  
Yavatmal, (M.S), India-445001

Session 2016-2017



  
Dr. Hemant M. Baradkar  
Principal  
Jagadambha College of Engineering &  
Technology, Arni Road, Kinhi, Yavatmal



## ABSTRACT

This is the gesture based sixth sense technology that controlled output display devices like monitor. This system can control content on the screen by using gesture of fingers without touching this screen. This technology has seamless applications. This provide easy control over the machinaries in the industries. The physical world around us with digital information and let us use natural hand gestures to interact with that information. Using this system we convert the real world into digital world. The gesture computing is the best technology that allows hand or the movement of fingers as input control. In this webcam is play most important role ,it capture the movement of fingers or recognize the color of finger and handle whole work and functionality of the system. In the project scripting language python is used as a backend of the project. Human-Computer Interaction (HCI) exists ubiquitously in our daily lives. It is usually achieved by using a physical controller such as a mouse, keyboard or touch screen. It hinders Natural User Interface (NUI) as there is a strong barrier between the user and computer. There are various hand tracking systems available on the market, but they are complex and expensive. In this paper, we present the design and development of a robust marker-less hand/finger tracking and gesture recognition system using low-cost hardware. We propose a simple but efficient method that allows robust and fast hand tracking despite complex background and motion blur. Our system is able to translate the detected hands or gestures into different functional inputs and interfaces with other applications via several methods. It enables intuitive HCI. We developed sample applications that can utilize the inputs from the hand tracking system. Our results show that an intuitive HCI can be achieved with minimum hardware requirements.



  
**Dr. Hemant M. Baradkar**  
Principal  
Jagadamba College of Engineering &  
Technology, Arni Road, Mysore



# CERTIFICATE

Certified that this B.E. Project Report titled

**e-VOTING SYSTEM**

by

**Ms. Manisha S. Meshram**

**Mr. Dhananjay A. Bhagat**

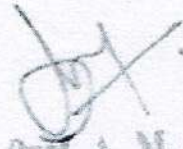
**Ms. Rekha S. Rathod**

**Mr. Rushikesh R. Embadwar**

**Ms. Gauri S. Alshi**

**(Final Year, Computer Engineering)**

Of final year (B.E) during the academic year 2016-2017 is for the partial fulfillment for requirement of the award of the degree of Bachelor of Engineering in Computer Engineering under Sant Gadge Baba Amravati University, Amravati.



Prof. A. M. Dhore

(Project Guide)



Prof. F. D. Thakare

(Head of Department)



De-verified  
29/9/17

Prof. Dr. H. M. Baradkar

(Principal)



**DEPARTMENT OF COMPUTER ENGINEERING**  
**JAGADAMBHA COLLEGE OF ENGINEERING & TECHNOLOGY,**  
**YAVATMAL, (M.S), INDIA-445001**

Session 2016-2017



**Dr. Hemant M. Baradkar**  
Principal  
Jagadamba College of Engineering & Technology



## ABSTRACT

e-Voting is a fully web based voting software solution based on network security. With the access control capabilities and the reliability, the network security has tremendously increased in providing authenticity and security. The present system conducts the elections manually, which takes lot of effort for conducting, maintaining and evaluating the voting process. This Automation helps in overcoming all the above mentioned problems and also helps in avoiding any kind of tempering that can be done. Rather than employing expensive consultants to print and mail paper ballots or setup and manage your elections, e-Voting puts the power of online voting in the hands of election administrators.

This project makes use of Java Servlets which provides a Java-based solution used to address the problems currently associated with doing server-side programming. Servlets are objects that conform to a specific interface that can be plugged into a Java-based server. Servlets are to the server-side what applets are to the client-side. Security is provided by RSA algorithm which is an ASSYMETRIC cryptographic algorithm with a pair of keys used for encryption and decryption.



**Dr. Hemant M. Baradka**  
Principal  
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Technology, Anni Road, Mumbai



**Course Outcomes:**

After successfully completing the course, the students will be able to:

1. Justify the basic concepts of object-oriented programming such as data types, functions, classes, objects, constructors, inheritance, overloading etc.
2. Design, implement, test, and debug simple programs in C++.
3. Describe how the class mechanism supports encapsulation and information hiding.
4. To know the concept of operator overloading
5. Understand inheritance in C++
6. Design and test the implementation of Java programming concepts

Subject: <b>OBJECT ORIENTED PROGRAMMING</b>		L
<b>Unit-1</b>	Principles of object-oriented Programming: OOP'S paradigm, basic concept of OOP'S, benefits of OOP'S, Four pillars of OOP, structure of C++ programming, basic data types.	06
<b>Unit-2</b>	User defined data type, derived data type, Abstract data types in C++, operators and control statement, Functions in C++: Functions, Function over loading, Friend Functions and virtual functions.	06
<b>Unit-3</b>	Classes and objects in C++: Types of classes and its use, concept of object and its implementation, constructor and destructors.	06
<b>Unit-4</b>	Operator and their definition, overloading unary and binary operator, rules for overloading operators, overloading binary operators using friends and string manipulation.	06
<b>Unit-5</b>	Inheritance in C++: Extending classes: Multilevel Inheritance, Multiple inheritances, Hierarchical inheritance, Hybrid inheritance, Virtual base classes and Abstract classes.	06
<b>Unit-6</b>	Introduction to Java programming, JVM, Java programming constructs: variables, primitive data types, identifier, literals, operators, expressions, primitive type conversion and casting, Basics of classes, objects, creating objects, and methods in Java.	06
<b>Total</b>		<b>36</b>

**Text Books:**

1. E Balagurusamy, "Object Oriented Programming Using C++ and JAVA", Tata McGraw-Hill.
2. E Balagurusamy, "Object Oriented Programming Using C++", Tata McGraw-Hill.

**Reference Books :**

1. Bjarne Stroustrup, "C++ Programming Language", Pearson Education.
2. H.M.Dietel and P.J.Dietel, "Java How to Program" Pearson Education/PHI, Sixth Edition.
3. Robert Lafore, "Object-Oriented Programming in C++", Pearson Education India, (4th Edition).
4. Herbert Schildt, "Java : The Complete Reference" Tata McGraw-Hill (7th Edition).
5. Yeshwant Kanetkar "Let us C++", BPB Publications.
6. Dr. N.B. Vekateswarlu, Dr. E.V. Prasad, "Learn Object Oriented Programming Using Java: An UML Based", S. Chand Publication.

**3ETC08 : OBJECT ORIENTED PROGRAMMING -LAB.**

**Course Requisite:**

1. Computer Programming
2. 3ETC05 Object Oriented Programming

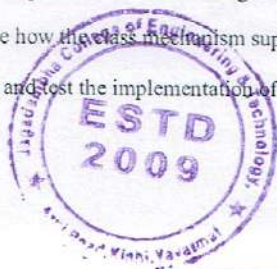
**Course Objectives:**


1. Design, implement, test, and debug simple programs in an object-oriented programming language.
2. Design and test the implementation of C++ programming concepts.
3. Design and test the implementation of java programming concepts.

**Course Outcomes:**

After successfully completing the course, the students will be able to

1. Justify the basics of object-oriented design and the concepts of encapsulation, abstraction, inheritance, and polymorphism.
2. Design, implement, test, and debug simple programs in an object-oriented programming language.
3. Describe how the class mechanism supports encapsulation and information hiding.
4. Design and test the implementation of C++ and java programming concepts.



  
**Principal**  
 Jagadamba College of Engineering &  
 Technology, Ami Road, Kirti, Yavatmal



## Certificate

This is to certify that the dissertation entitled "OBJECT IDENTIFICATION FOR BLIND PEOPLE USING IMAGE PROCESSING" is a bonafide work done under our supervision and is submitted to Sant Gadge Baba Amravati University, Amravati in partial fulfillment of the requirement for the Bachelor of Engineering in Electronics & Telecommunication.

Submitted by

Ms. Rajashri A. Urkutkar

Mr. Nakul V. Penore

Ms. Vaibhavi D. Raut

Ms. Vidya G. Kularkar

Ms. Rani S. Bhabutkar

Ms. Neha S. Bhedurkar



Prof. A. R. Dudhe

Guide

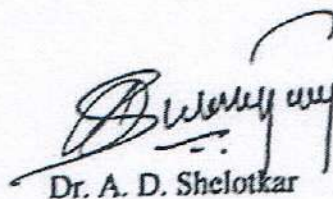
EXTC Engg. Deptt



Prof. K. L. Thakare

Project Co-ordinator

EXTC Engg. Deptt.



Dr. A. D. Shelotkar

HOD

EXTC Engg. Deptt



Dr. H. M. Baradkar

Principal

J. C. Yavatmal

Dr. Hemant M. Baradkar  
Principal

Jagadamba College of Engineering & Technology, Arvi Road, Kishi, Yavatmal





## ABSTRACT

Self-Dependency of blind people is very important in their day-to-day lives. In this presents a cost effective prototype system to help blind persons to shop independently. As we know printed text is everywhere like product names, instructions on medicine bottles, restaurant menus, signed boards etc. To read these text blind and visually impaired people need some help. In this presents a camera-based assistive product label reader for blind persons to read information of the products. It is hard to detect text due to the variations of text font, sizes, text, clutter background and different orientation. In this Camera is used to captured the image of the product .Then captured image is processed internally using different algorithms such as SURF Algorithm, and text recognition algorithm to extract text the label from image by using MATLAB .The extracted text label is converted to audio output using text to speech converter and it is pronounced as audio to the blind person.

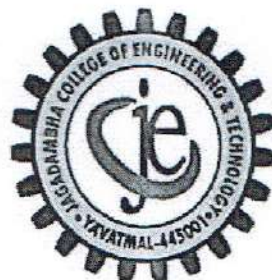
**Keywords :** Assistive devices, blindness, hand-held objects, text reading, and text region localization, camera-based label reader, text localization and text recognition algorithm, MATLAB, text to speech converter.



  
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Department of Electronics & Telecommunication Engineering  
JAGADAMBHA COLLEGE OF ENGINEERING AND  
TECHNOLOGY, YAVATMAL



CERTIFICATE

This is to certify that the dissertation entitled "**DETECTION OF LOCATION & MINIMIZING ERROR USING MOBILE ANCHOR IN WSNs**" is a bonafide work done under our supervision and is submitted to Sant Gadge Baba Amravati University, Amravati in partial fulfillment of the requirement for the Bachelor of Engineering in Electronics & Telecommunication.

Prof. V. R. Thakare  
Guide  
EXTCEngg.Deptt

Prof. K.L. Thakare  
Project Coordinator  
EXTC Engg.Deptt.

Dr. A. D. Shelotkar  
HOD  
EXTC Engg.Deptt

Dr.H.M. Baradkar  
Principal  
J.C.O.E.T Yavatmal



Dr. Hemant M. Baradkar  
Principal  
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## ABSTRACT

Accurate and low-cost sensor localization is a critical requirement for the deployment of wireless sensor networks in a wide variety of applications. Many applications require the sensor nodes to know their locations with a high degree of precision. Various localization methods based on mobile anchor nodes have been proposed for assisting the sensor nodes to determine their locations. However, none of these methods attempt to optimize the trajectory of the mobile anchor node. Accordingly, this project presents a path planning scheme, which ensures that the trajectory of the mobile anchor node minimizes the localization error and guarantees that all of the sensor nodes can determine their locations. The obstacle-resistant trajectory is also proposed to handle the obstacles in the sensing field. Later this path planning algorithm is adjusted so that it suits most of the effective localization algorithms. The performance of the proposed scheme is to be evaluated through a series of simulations with the ns-2 network simulator.

*Keywords-* Localization, **Wireless Sensor Networks (WSNs)**, GPS, mobile anchors, Chord selection, beacons, Approximate Point-in-Triangulation, Path Planning Based Localization.



  
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**RECOMMENDED BOOKS:**

**Text books :**

1. Thermal engineering; Mahesh M Rathore; Tata McGraw-Hill
2. Thermal Engineering R.Yadav; Central publication
3. Non-conventional Energy Sources B. H. Khan Tata McGraw-Hill
4. Non-conventional Energy Sources G. D. Rai.

**Reference books:**

1. Steam Turbine; Kearton; Oscar Publications.
2. Thermal Power Engineering; Mathur Mehta; Tata McGraw-Hill
3. Power Plant Engineering. P. K. Nag
4. Power Plant Engineering; R. K. Rajput ; Laxmi Publications
5. Thermal Engineering, P.L.Ballaney; Laxmi Publications.

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4ME03

**MANUFACTURING TECHNOLOGY**

**Course Learning Objectives :**

1. To study the mechanics of metal cutting, tool characteristics and cutting forces
2. To study the turning operations using lathe and CNC machines
3. To study the working of drilling and boring machines
4. To study the working of milling and gear cutting machines
5. To study the machining operations using grinding, shaper, planer and slotter machines
6. To study the unconventional machining processes

**Course Outcomes :**

Students will be able to -

1. Apply the knowledge of theory of metal cutting, tool selection & calculate cutting forces
2. Demonstrate the knowledge of basics of turning operations
3. Understand the drilling and boring operations and working of drilling & boring machines
4. Understand the milling and gear cutting operations and working of respective machines
5. Understand the working of grinding, shaper, planer and slotter machines
6. Understand the knowledge of unconventional machining processes

**SECTION – A**

**UNIT I :** Theory of Metal cutting: Mechanics of Metal cutting, Tool material, Tool Geometry, Cutting tool classification, Tool life, Tool wear, Calculation of Cutting forces, Machinability, Cutting fluids, Chip thickness ratio, Merchant circle. (8 Hrs)

**UNIT II :** Construction, Operations and accessories of centre lathe, introduction of capstan & turret lathe, indexing mechanism, bar feeding mechanism, Machine tool classification. Numerical approach. Taper turning & Screw cutting & basic concept of CNC. Introduction, working principal & CNC turning operation. (10 Hrs)

**UNIT III :** a) Drilling operation : Drilling M/cs general purpose, Mass production and special purpose drilling M/cs.  
b) Introduction & types of Boring. Boring M/c :- Horizontal, Vertical and jig Boring M/c. Introduction to Broaching and its types, broach terminologies, etc. (8 Hrs)

**SECTION - B**

**UNIT IV :** (a) Calculation of machining time for Milling.  
(b) Milling M/c :- Types. Types of Milling Cutters, Dividing head, Compound and differential indexing.  
(c) Gear producing M/cs. (6 Hrs)

**UNIT V :** a) Grinding Machines: Bench grinders, surface grinders, centres grinders, types of bonds & Abrasive modification of grinding wheels.  
b) Study of various part & Operation of Shaper, Planer, Slotter. (6 Hrs)

**UNIT VI :** Unconventional Machining Processes:-  
a) Mechanical Processes:- Ultrasonic Machining - principle and applications. process parameters: Abrasive and water parameters involved.  
b) Thermal processes:- Election Beam Machining – Generation of beam, principle and applications : Laser Beam machining applications : Plasma-arc machining- Concept and generation of plasma, principle of PAM, applications.



*HAR*  
Principal  
Jagadamba College of Engineering &  
Technology, Ami Road, Kinhi, Yavatmal





JAGADAMBHA BAHUDDSHIYA GRAMIN VIKAS SANSTHA'S YAVATMAL  
JAGADAMBHA COLLEGE OF ENGINEERING  
& TECHNOLOGY, YAVATMAL - 445001

DEPARTMENT OF MECHANICAL ENGINEERING

**CERTIFICATE**

THIS IS TO CERTIFY THAT "MR. GAURANG J. PANDE, MR. KETAN M. GAWANDE, MR. DINESH G. NAKADE, MR. AJIT A. KALE, MR. NITIN H. GULHANE, MISS PRAGATI A. RAIMAL, MISS DIPALI R. DHAWALE" OF FINAL YEAR MECHANICAL ENGINEERING STUDENT HAS SUBMITTED THE PROJECT REPORT ON THE "**DEVELOPMENT OF MULTIFUNCTIONAL PROGRAMMABLE WORKSTATION**" TO MY SATISFACTION AND SUBMITTED THE SAME DURING THE ACADEMIC YEAR 2016 – 2017 TOWARDS THE PARTIAL FULLFILLMENT OF DEGREE OF BACHELOR OF ENGINEERING UNDER SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI.

*P. V. Bhendarkar*  
5/6/2017

Prof. P. V. Bhendarkar  
Project Guide  
Mech. Engg. Dept.

*W. L. Bhambere*

Dr. V. L. Bhambere  
H.O.D.  
Mech. Engg. Dept.

DATE : 11 / 6 / 2017

PLACE: YAVATMAL



*H. M. Baradkar*

Dr. H. M. Baradkar  
Principal

J.C.O.E.T. Yavatmal  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering & Technology, Arni Road, Kinhi, Yavatmal




## ABSTRACT

*The Mechanism deals with creating profiles and cutting of profiles of objects, structures, components using programming. Currently, various printers, plotters are available in market. But their mechanism differs with this one. In our mechanism, we are providing movable work piece & tool platform in x, y, & z direction. The motion is controlled by using motors & some programmes & commands. It's uniqueness & simple structure makes it comfortable & attractive. Here we require studying programming languages available, motor programming & the interference of program with the hardware. We are going to study all these & finally a suitable, easy to operate mechanism CAD model & a working prototype will be created.*

*Moreover in future, we can add number of operations to this mechanism like cutting, 3d printing, drilling. Thus, it results in a unique programmable cutter, drill or 3d printing mechanism.*

*Keywords :- CAD model, prototype*



  
**Dr. Hemant M. Saradkar**  
**Principal**  
Jagadamba College of Engineering &  
Technology, Arni Road, Kinhi, Yavatmal



**Unit V :** Basic principle, construction & applications of sensors and transducers, contact - non- contact type, optical proximity sensors. Switches, contact type, magnet type, electromagnetic type, sound, light, pressure, vibration transducers, Hall effect-sensors A.C./D.C. Tachogenerators. (8 Hours)

**Unit VI:** Industrial applications - classes of duty selection of an electric drive for particular applications such as steel mill, paper mill, cement mill, textile mill, sugar mill, electric traction, coal mining, etc. Induction heating, surface hardening & Dielectric heating. (8 Hours)

**BOOKS RECOMMENDED :**

**Text Books:**

1. A First Course on Electrical Drives - S.K. Pillai.
2. Basic Electrical Technology (Vol. 11) - B.L. Theraja

**Reference Books :**

1. Drives and Control - N. Dutta
2. Mechatronics - W. Bolton, Addison Wesley, Longman Ltd.
3. A Course in Electrical, Electronics Measurement and Instrumentation, By A.K.Sawhney, Dhanpat Rai & Sons,

**4ME09 BASIC ELECTRICAL DRIVES AND CONTROL - LAB**

**List of Experiments :**

Any EIGHT practicals from the following list :

1. To study the Specification of Various Electrical Machines.
2. To study the D.C. Motor Starters.
3. To study the Running and Reversing of D.C. Motor.
4. Speed Measurements using Magnetic Pick-up.
5. To study the Speed reversal of counter Current Breaking of 3-phase Induction Motor.
6. To control the speed of D.C. Motor by a) Armature Control b) Field Control.
7. To perform Load Test on Induction Motor.
8. To study Dynamic/Rheostatic Breaking of D.C. Motor.
9. To study Characteristics of Thyristor.
10. To study the speed - Torque Characteristic of Servo Motor.

\*\*\*\*\*

**4ME05 HYDRAULIC AND PNEUMATIC SYSTEMS**

**Course Learning Objectives:**

1. To get fundamental background about the hydroelectric power plants
2. To study operation, working principle & performance characteristics of hydraulic turbines
3. To study operation, working principle & performance characteristics of centrifugal pump, reciprocating pump and other hydraulic pumps
4. To study the behavior of compressible fluid flow
5. To study different hydrostatic & hydro kinematics industrial applications

**Course Outcomes:**

Students will be able to -

1. Demonstrate basic concepts of prime movers and turbines
2. Utilize the knowledge of centrifugal and reciprocating pumps for applications
3. Reveal the importance of other water lifting devices
4. Solve the elementary treatment on compressible fluid flow
5. Understand the concept of hydrostatic and hydrokinetic systems
6. Use the knowledge of hydraulics & pneumatics in developing project work.

**SECTION - A**

**Unit I :** Hydraulic Turbines - Theory of impulse and reaction turbines. Pelton, Francis and Kaplan turbines, their construction, classification, analysis, characteristics and governing, draft tube. (10 Hours)

**Unit II :** Centrifugal pumps - Basic Theory, Classification, construction, operation, characteristics, multistage, NPSH and cavitations in pumps. (7 Hours)



**Principal**  
Jagadamba College of Engineering &  
Technology, Ami Road, Kinhi, Yavatmal



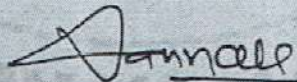


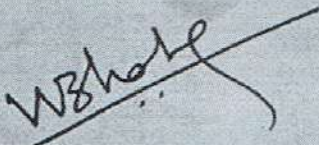
JAGADAMBHA BAHUDDSHIYA GRAMIN VIKAS SANSTHA'S YAVATMAL  
JAGADAMBHA COLLEGE OF ENGINEERING  
& TECHNOLOGY, YAVATMAL - 445001

DEPARTMENT OF MECHANICAL ENGINEERING

**CERTIFICATE**


THIS IS TO CERTIFY THAT "MR. BALASAHEB B. JADHAV, MR. NARESH G. BHIMARTIWAR, MR. RAHUL N. MASALE, MR. VINOD C. BODHALE, MR. UMESH B. CHOUDHARI" OF FINAL YEAR MECHANICAL ENGINEERING STUDENT HAS SUBMITTED THE PROJECT REPORT ON THE **EXPERIMENTAL INVESTIGATION OF PV CELL FOR PERFORMANCE IMPROVEMENT BY USING DIFFERENT SPECTRUM OF LIGHT.** TO MY SATISFACTION AND SUBMITTED THE SAME DURING THE ACADEMIC YEAR 2016 - 2017 TOWARDS THE PARTIAL FULLFILLMENT OF DEGREE OF BACHELOR OF ENGINEERING UNDER SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI.

  
Prof. V. R. Pannase  
Project Guide  
Mech. Engg. Dept.

  
Dr. V. L. Bhambere  
H.O.D.  
Mech. Engg. Dept.

DATE : / / 2017  
PLACE: YAVATMAL



  
Dr. H. M. Baradkar  
Principal  
J.C.O.E.T. Yavatmal  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering & Technology, Arni Road, Kinhi, Yavatmal.



## ABSTRACT

The performance of solar cell govern by the different environmental as well as physical factors the investigated research work addresses that the maximum conversion efficiency of photo voltaic cell is up to 16-20%. In these research work we are propose to improve the performance photo voltaic cell with the use of different spectrum of emitted photon. Overall this research work emphasis on implementation of pleasant research to satisfy future demand of power through the use of renewable resource.

India being a home to a huge population witnesses high Incident Solar radiations throughout the year. Planning has been made to produce at least 20 Gig watts of high quality solar power by the year 2020. Energy harvested from the sun is a necessarily a valuable source but still most it part goes unutilized in Indian subcontinent although being a tropical region. The main obstacle for the wide usage of solar Photovoltaic systems is their efficiency which is very low (20-25% for single crystal 10-15% for polycrystalline and 3.5% for amorphous silicon solar cells and high cost of manufacturing. In main objective behind the work in this project lies in extracting maximum harvestable power from a Photovoltaic module and use the energy for a DC application as well as the grid connection of the generated power so that the surplus power unutilized in the load can be transferred to the grid. The methods of improvement involve Maximum power point tracking used to improve overall power output from the system and use color filters and Fresnel lens to enhance total irradiance and thereby reducing the reflection of sunlight through the cell. The best method of efficiency improvement is found out.

**Keywords:-** photo-voltaic cell, polycrystalline, spectrum light, efficiency.



Dr. Hemant M. Baradka.  
Principal  
Jagadamba College of Engineering &  
Technology, Amri Road, Kinhi, Yavatoli



**Unit-VI: Tunnel and Bridges:** Tunnels- necessity, types, tunnel alignment, Size and shape of tunnels, and Tunnel lining. Tunnel drainage, ventilation & lighting of tunnels. Bridge Engineering-Components, classification and identification, data collection, site selection, economic span, Estimation of flood discharge, water way, scour depth, depth of foundation, Afflux, clearance and free board, different structural form – culverts, types of foundation, abutments, piers and wing wall.

**Books Recommended:**

- 1) Khanna S.K. & Justo C.E. : Highway Engineering
- 2) Rao G.V. : Principles of Transportation & Highway Engg.
- 3) Dr.Kadiyali L.R. : Traffic Engg. & Transport Planning.
- 4) Bindra S.P. : Principles & Practice of Bridge Engg.
- 5) Saxena & Arora : Railway Engineering.
- 6) Agrawal M.M. : Railway Engineering.
- 7) Khanna S.K., Arora M.G., Jain S.S. : Airport Planning & Design.
- 8) Srinivasan: Tunnel Engineering.
- 9) Sharma S.K. : Principles, Practice & Design of Highway Engg.
- 10) Duggal A.K. & Puri V.P. : Laboratory Manual in Highway Engg.

**3CE05 – CONCRETE TECHNOLOGY & RCC**

**Learning Objectives of Subject:**

1. To understand basic construction material - Cement, its property and suitability tests.
2. To learn about meaning of concrete, strength of concrete, mixing proportion and suitability test.
3. To understand meaning of RCC and its need.
4. To learn various properties of concrete and use of different admixtures.
5. To learn about special concrete materials and methods.
6. To be able to perform mix design of concrete

**Course outcomes:**

At the end of the subject the students will be able -

1. To know need and composition of binding material, cement.
2. To recognize concrete and RCC and will be able to perform desired test for suitability,
3. To analyze RCC Components like slab and lintels.
4. To decide and utilize the admixtures as per the need of Concrete.
5. To understand importance of mix design.

**SECTION-A**

**Unit I: Cement: Physical properties** of Portland cement, laboratory tests on cement, types of cements. Aggregate: Classification of aggregate, physical properties, bulking and moisture content, specific gravity, bulk density.

**Unit II: Properties of fresh concrete: Workability** of concrete, methods of measuring workability, nominal mix, mixing, centering & formwork, placing, compaction and curing of concrete. Properties of hardened concrete: Grades of concrete, properties of concrete, compressive, tensile, and shear strength, modulus of elasticity, creep, shrinkage. Durability of concrete, laboratory tests on concrete.

**Unit III: Basic elastic theory and concept of reinforced concrete**, types of reinforcement, Analysis of rectangular sections by working stress method, modes of failure, design of singly reinforced beams, one-way slabs (simply supported), lintels, and chajjas.

**SECTION-B**

**Unit IV: Pozzolana and Admixtures:** Plasticizer, retarders, accelerators, water proofing agents, IS code provisions. Construction chemicals: concrete curing compounds, polymer bonding agent, surface retarders, bonding for plastering, protective and decorative coating.

**Unit V: Special concrete:** Ready Mix Concrete, Light weight concrete, fiber reinforced concrete, Roller compacted



Principal

Jagadamba College of Engineering & Technology, Amravati, Maharashtra



# CERTIFICATE

*This is to certify that the Project Entitled*

**“COMPARITIVE STUDY AND DESIGN OF RCC AND PRESTRESS  
CONCRETE BRIDGE GIRDER WITH (COMPUTER  
PROGRAMMING) MS. EXCEL SHEET”**

*Has been successfully completed by*

SHITAL V. RATHOD

PAVAN J. DAHANE

SANKALP S. DANGORE

MAYUR G. GOSAVI

SHANTANU R. BAJAD

VAISHNAVI S. AGRAWAL

SHUBHAM D. BARDE

UTKARSHA C. UJAWANE

CHE TAN A. MATARMARE

*In partial fulfillment for the degree of*

**Bachelor of Engineering  
(Civil Engineering)**

Awarded by

**Sant Gadge Baba Amravati University, Amravati, (M. S)**

**During academic year 2016-2017 under my guidance**


Guided by




**Prof S.S. KENDIIE**

**Assistant Prof. (Civil Department)**

**Jagadambha College of Engineering and Technology  
Yavatmal**



**Prof. A.R. Kode**  
Head of Civil Department  
Jagadambha College of Engineering and  
Technology,  
Yavatmal.



**Dr. H.M. Baradkar**  
Principal  
Jagadambha College of Engineering and  
Technology,  
Yavatmal



**Dr. Hemant M. Baradkar**  
Principal  
Jagadambha College of Engineering  
Technology, Arni Road, Yavatmal



## ABSTRACT

We are going to work on the comparison between R.C.C. bridge girder and prestressed concrete bridge girder. This work includes the design of R.C.C. bridge girder and pre-tensioned bridge girder. The aim of this work is to design of R.C.C as well as pre-stressed concrete bridge girder by analyzing manually and then analyzing in MS Excel by formulation sheets and then compare the results. The idea is to reach a definite conclusion regarding the superiority of the two techniques over one another. Prestressed concrete is useful for big spans and rapid completion of construction works. Prestressed concrete mainly used in buildings, bridges and towers. In this project the design of Prestressed girder elements are discussed, various methods and their suitability for the design are discussed, mainly concentrated on Indian standard code method and Indian road congress.

The purpose of present study is the design of bridge structure for 25 m of spans. The most obvious choice of this span is the box girder and because of which the comparative study of Prestress and R.C.C in this thesis is covered by the mean of box girder. The study is based on the basis of moment of resistance of section, Shear forces at end and middle of the spans. the ultimate goal of study is to determine most favorable option from above two comparison in between the Prestress and R.C.C bridge girder.

**Keywords:-**Box girder, Prestress, R.C.C, I.S, I.R.C



**Dr. Hemant M. Baradkar**  
Principal  
Jagadamba College of Engineering &  
Technology, Amji Road, Kinhi, Yavatmal



1. Determination of Los Angeles value
2. Determination of Abrasion value of Aggregates by the use of devil machine
3. Determination of Aggregate Impact value
4. Determination of Aggregate Crushing value
5. Determination of Flakiness and Elongation Index of Aggregate.
6. Determination of Viscosity of Bituminous material
7. Determination of softening point of bituminous material.
8. Determination of ductility of bitumen.
9. Determination of marshal stability value

### 3CE09 CONCRETE TECHNOLOGY & RCC – LAB

List of Practicals in Concrete Technology & RCC Lab (Minimum eight practical from the list should be performed) :

1. Mix Design (Compulsory) by IS method.
2. Compulsory site visit and submission of site visit report.
3. Fineness of cement
4. Soundness of cement
5. Consistency and setting time of the cement
6. Compressive strength of cement
7. Sieve analysis of aggregate.
8. Bulking of sand (fine aggregate).
9. Silting of sand.
10. Workability by slump cone test compaction factor test
11. Admixture: Density, Compatibility Test
12. Workability by flow table method.
13. Compressive & Tensile strength of concrete.

\*\*\*\*\*

## FOURTH SEMESTER

### 4CE01 BUILDING PLANNING DESIGNING & CAD

Learning Objectives of Subject:

1. To understand need of engineering drawings and methods to draw it.
2. To learn about various planning principles and able to apply on residential buildings.
3. To understand seasonal and climatic condition and corresponding provisions in structure.
4. To know regional rules regulation related to building construction.
5. To learn various types of plan – Block , Site , Line , Detail , Section etc.
6. To learn about smart buildings.

Course outcomes:

At the end of the subject the students will be able -

1. To make engineering drawings by First angle and Third angle method.
2. To apply building planning principles practically while developing projects.
3. To study the climatic conditions and decide the corresponding provision in structure.
4. To know about Bylaws, Town development authority rules and terms.
5. To draw various plans manually and computationally.

### SECTION-A

Unit I: Importance of building drawing for Civil Engineering in construction & industry, estimation, Selection of scales for various drawings. Types of line and their application. Methods of dimensioning in architectural drawing. Abbreviations and graphical symbols used in Civil Engineering Drawing as per IS: 962. Compare first angle and third angle method of projection. Layout of sheet for civil engineering drawing. Requirements of drawing and documents as per plan sanctioning authorities. Define FSI and TDR.

Unit II: Planning of residential building. Introduction, general principles of planning viz. aspect, prospect,

  
Principal

Jagadamba College of Engineering & Technology, Amravati





# CERTIFICATE

*This is to certify that the Project Entitled*

**“COMPARATIVE ANALYSIS OF LATERAL LOAD  
RESISTING SYSTEM FOR RCC STRUCTURE”**

*has been successfully completed by*

BHAVINI V. UKEY

SHUBHAM P. DHOKE    SHUBHAM S. NAKSHANE  
SHUBHAM S. HANDE    TRUPTI A. MANKAR  
GUNJ D. RATHOD    SONALI B. MUNDE  
KUNAL R. JAWADE    TUSHAR R. WAGH

*In partial fulfillment for the degree of*

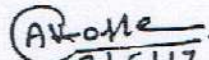
Bachelor of Engineering  
(Civil Engineering)

Awarded by

Sant Gadge Baba Amravati University, Amravati, (M. S)


During academic year 2016-2017 under my guidance

Guided by


  
815117


Prof. A. V. GORLE

Department of Civil Engineering  
Jagadambha College of Engineering and Technology  
Yavatmal

  
815117  
Prof. A. R. Rode  
Head of Civil Department  
Jagadambha College of Engineering and  
Technology,  
Yavatmal.



  
Dr. H. M. Baradkar  
Principal  
Jagadambha College of Engineering and  
Technology,  
Yavatmal.

  
Dr. Hemant M. Baradkar  
Principal  
Jagadambha College of Engineering &  
Technology, Amravati, Yavatmal



## ABSTRACT

In enchanting the world of buildings with new innovative ideas of lateral load resisting system. As these structures are extended vertically and they are going to with stand the lateral loads in an enormous intensity. Seismic loads are occasional forces on structures that may occur during their life time. Buildings should be able to withstand in minor earthquakes without any structural damage and during major earthquakes without total collapse. Therefore, it is important to know the behavior of buildings for different types of lateral load resistant structural systems. In the present work, an attempt has been made to evaluate the structural behavior of various lateral load resisting systems. The detailed investigations have been carried out on four types of structural systems which include one basic moment resisting frame, other two with different combinations of frame with shear wall & last is diagrid system. This project report provides an investigation has been carried out over a 20, 30 & 40 storey RCC structure using different lateral load resisting system. The stiffness and configuration of those identified elements play a major role in determining the design force levels in the elements. The structural systems used in this project report are "beam column system", "frame tube system", "shear wall with frame system" and "diagrid system". Analysis has been carried out using response spectrum method and gust factor method. The basic modelling technique and assumption are made by using ETABS 15.0.0 software and other consideration are made according to the Indian Standard. A comparison of the storey displacement, storey forces and time period of the whole structure is done for different configuration of lateral load resisting systems. At the completion of the study the conclusion will be arrived and stated regarding to the effect of seismic load application.

**Keywords:** Storey displacement, Bracing, Frame Tube, Stiffness, Diagrid, Shear Wall, Dynamic, Response Spectrum Analysis, ETABS.



  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology, Amri Road, Kinhi, Yavatmal





Regd. No. 1892/2009

408, Nilgiri Block, Aditya Enclave, Ameerpet, Hyderabad-38. Ph: 09985943539

# Certificate of Merit

*This is to certify that*

*Mr. / Ms. / Mrs.* \_\_\_\_\_ **SHRIKANT N. GELEWAR** \_\_\_\_\_

*has successfully completed* \_\_\_\_\_ **ELECTRICAL CAL CAD** \_\_\_\_\_

*from* \_\_\_\_\_ **18-01-2016** \_\_\_\_\_ *to* \_\_\_\_\_ **18-02-2016** \_\_\_\_\_

*and has obtained* \_\_\_\_\_ **"A"** \_\_\_\_\_ *Grade*



Date: **18-02-2016**

E - Excellence (96% - 99%) A - Very Good (76% - 95%) B - Good (61% - 75%) C - Satisfactory (40% - 60%)



**G. M. Baradkar**  
Principal  
Jagadamba College of Engineering & Technology Aml Road, Hyderabad



C.No. - 2078

Date : 25 JUN 2016

MAHA GENCO

Maharashtra State Power Generation Co. LTD.

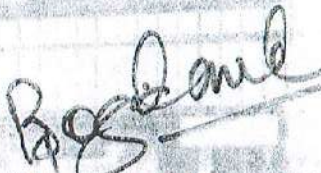
# Certificate

*This is to certify that*


Mr. Gaurav Kisan Pawar, has undergone In-Plant Summer Training 2016  
at Bhusawal Thermal Power Station, Deepnagar.  
From 30th May 2016 to 25th June 2016.



The learning progress during the training has been assessed to be Excellent.

  
Course Director  
BTPS, Deepnagar



  
Dr. Homant M. Baradkar  
Chief Engineer  
Jyotambha College of Engineering &  
BTPS, Deepnagar, Yavatmal





Maharashtra State Power Generation Co. Ltd.

Thermal Power Station Paras

Dist Akola 444 109

ISO 9001 : 2008 & 14001 : 2004 Certified

## Certificate

This is certify that Mr./Mrs. Prawesh Rajesh Meshram

student of Jagadambha College of Engineering & Technology, Yavatmal

Year / Semester Third Year has undergaon Four Weeks in plant


industrial practical training at TPS Paras, Tq. Balapur Dist: Akola during

summer vacation training from date 1-Jun-16 to 30-Jun-16

Place: Paras

Date: 30 Jun 2016



  
Chief Engineer

MSPGCL TPS PARAS

  
Dr. Memant M. Baradkar  
Principal  
Jagadambha College of Engineering &  
Technology, Ami Road, Kinhi, Yavatmal





Ref. No. HR/ Training/ 16-17/ 031

Date: July 08, 2016

**To whom so ever it may concern**

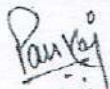
This is to certify that Ms. Aishwarya Gajanan Karnewar student of Final Year B.E (Electrical Engineering) from Jagadamba College of Engineering & Technology, Yavatmal, has satisfactorily completed her summer internship with us, as per following details:

Name of the Department : Operations & Maintenance (Electrical)  
Duration : 10<sup>th</sup> June' 2016 to 07<sup>th</sup> July' 2016


During her internship period we found her sincere.

We wish her all the success in her future endeavor.

For RattanIndia Power Limited

  
Authorized Signatory



  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology, Arni Road, Kinhi, Yavatmal

**RattanIndia Power Limited**

(Formerly Indiabulls Power Ltd.)

Registered Office : 5th Floor, Tower-B, Worldmark 1, Aerocity, New Delhi - 110037

Tel : +91 11 66612666 Fax : +91 11 66612777

Website : www.rattanindia.com

CIN : L40102DL2007PLC160082



प्रमाण पत्र संख्या 45948  
Certificate No. ....



प्रशिक्षण महानिदेशालय  
Directorate General of Training  
कौशल विकास एवं उद्यमिता मंत्रालय  
Ministry of Skill Development and Entrepreneurship  
भारत सरकार  
Government of India

## CERTIFICATE OF PROFICIENCY

Certified that प्रमाणित किया जाता है

Shri/Smt/Kumari श्री / श्रीमती / कुमारी

SNEHA NARAYAN KHARKAR

Son/Daughter/Wife of Shri सुपुत्र / सुपुत्री / पत्नी श्री

NARAYAN KHARKAR

has successfully completed the training programme as per details given below and awarded this certificate/ ने सफलतापूर्वक नीचे दिए गए विवरण के अनुसार प्रशिक्षण प्राप्त किया जिसके तहत इस प्रमाण पत्र से सम्मानित किये जाते हैं

Name of the course / पाठ्यक्रम का नाम "AC ELECTRIC MOTORS- TESTING, OPERATION & MAINTENANCE"

Course conducted at / पर पाठ्यक्रम का आयोजन ADVANCED TRAINING INSTITUTE

Duration of the course / पाठ्यक्रम की अवधि TWO WEEKS

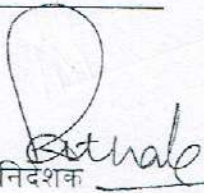
From / से 11.07.2016 To / तक 22.07.2016

Deputed / Private / प्रतिनियुक्त / निजी PRIVATE

Place/स्थान : MUMBAI

Date/दिनांक : JULY 22, 2016



  
निदेशक

DIRECTOR

( ISO 29990 - 2010 CERTIFIED )  
Dr. Hemant M. Baradkar  
Jagadambha College of Engineering & Technology, Ami Road, Kinhi, Yavatmal





MAHAGENCO

MAHARASHTRA STATE POWER GENERATION COMPANY LIMITED

CHANDRAPUR SUPER THERMAL POWER STATION, CHANDRAPUR - 442 404

AN ISO 9001. 14001 & OHSAS 18001 UNIT

# Certificate

## INDUSTRIAL TRAINING COURSE

This is to certify that,

Mr. / Mrs. / Miss Madhuri Wasudeo Wadekar

Student from Jagadamba College of Engineering and Technology, Yavatmal of 7<sup>th</sup> sem.

Has successfully completed Industrial Training Course at  
Chandrapur Super Thermal Power Station,

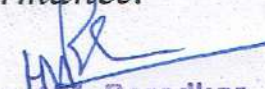
Chandrapur.

From 15<sup>th</sup> dec. 2016 to 7<sup>th</sup> Jan. 2017.

This certificate is issued to him / her for successfully completion of Industrial Training with satisfactory performance.

Date : 7 JAN 2017  
Place : CSTPS, CHANDRAPUR



  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering & Technology, Arni Road, Kunhi, Yavatmal

  
CHIEF ENGINEER  
CSTPS : CHANDRAPUR





**MAHAGENCO**

Maharashtra State Power Generation Co. Ltd.

Thermal Power Station Paras

Dist. Akola 444 109

ISO 9001 : 2008 & 14001 : 2004 Certified

*Certificate*

This is to certify that Mr./Mrs. Hemant V. Chunarkar

Student Of Jagadambha College of Engineering & Technology, Yavatmal

Year/ Semester Final Year has successfully undergoon Three Weeks

In Plant Industial Practical Training at TPS Paras, Tq. Balapur Dist. Akola  
during Winter Vacation Training from date 19 Dec.16 To 07 Jan. 17

During the period of training his/ her performance has been found to be very good.

We wish the very best for his/ her future endeavors.

**Chief Engineer**

MSPGCL TPS PARAS

**Dr. Hemant M. Baradkar**  
**Principal**  
Jagadambha College of Engineering &  
Technology Arni Road, Kinhi, Yavatmal

Place : Paras

Date: 07 Jan. 2017







Jagadambha Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCET/16-17/413

Date: 11/11/2016

To,  
The HR,  
Thermal Power Station,  
Paras,

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Electrical Engineering of Jagadambha College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 19<sup>th</sup> Dec to 7<sup>th</sup> Jan 2017. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Suraj Wadhai
2. Hemant Chunarkar
3. Vaibhav Durkewar

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



Principal, *Ashantambhar*  
Jagadambha College of Engineering & Technology,  
Yavatmal

Principal  
Jagadambha College of Engineering &  
Technology, Arni Road, Kham, Yavatmal

*Dr. Hemant W. Baradkar*  
Principal

Jagadambha College of Engineering &  
Technology, Arni Road, Kham, Yavatmal

ARNI ROAD, YAVATMAL - 445 001 (M.S.) INDIA

Tel : (07232) 244226, Fax : (07232) 244226 Mob. 9096548670

Website : www.jcoet.org E-mail : principal@jcoet.org





Jagadamba Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA

## COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCET/15-16/1068

Date: 23/05/2016

To,  
The HR,  
Thermal Power Plant,  
Paras, Maharashtra

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Electrical Engineering of Jagadamba College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 1<sup>st</sup> Jun to 30<sup>th</sup> June 2016. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Prawesh Meshram
2. Sumit Dikundwar

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



*A. Salunke*  
Principal,  
Jagadamba College of Engineering & Technology,  
Yavatmal

*H. B. Baradkar*  
Dr. Hemant B. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology, Arni Road, Kinni, Yavatmal





Jagadamba Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCET/15-16/1150

Date: 18/05/2016

To,  
The HR,  
Rattan India Power Plant,  
NandgaonPeth,  
Amravati

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Electrical Engineering of Jagadamba College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 10<sup>th</sup> Jun to 07<sup>th</sup> July 2016. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Aishwarya Karnewar
2. Pratidnya Meshram
3. Sonali Dhoke

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



Principal  
Jagadamba College of Engineering & Technology,  
Yavatmal  
Jagadamba College of Engineering & Technology, Arni Road, Kinsi, Yavatmal

Dr. Homant M. Baradkar  
Principal

Jagadamba College of Engineering & Technology, Arni Road, Kinsi, Yavatmal

ARNI ROAD, YAVATMAL - 445 001 (M.S.) INDIA  
Tel : (07232) 244226, Fax : (07232) 244226 Mob. 9096548670  
Website : www.jcoet.org E-mail : principal@jcoet.org





Jagadambha Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCET/15-16/1120

Date: 02/06/2016

To,  
The HR,  
Rattan India Power Plant,  
Nandgaonpeth  
Amravati, Maharashtra

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Electrical Engineering of Jagadambha College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 10<sup>th</sup> jun to 7<sup>th</sup> july 2016. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Akash Parekar
2. Sayali Urkude
3. Adarsh Gawai
4. Kancha Khasale
5. Ankita Giratkar

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



Principal  
Jagadambha College of Engineering & Technology,  
Principal  
Jagadambha College of Engineering & Technology, Arni Road, Yavatmal

Dr. Hemant M. Baradkar  
Principal





Jagadambha Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA

## COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCET/15-16/1374

Date: 10/06/2016

To,  
The HR,  
Prointegra It Solution Limited,  
Nagpur

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Electrical Engineering of Jagadambha College of Engineering & Technology, Yavatmal is interested to undertake an Industrial Training at your prestigious organization from 13<sup>th</sup> jun to 16<sup>th</sup> july 2016. This training will help to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidate.

1. Shirin Sheikh

Hence, we humbly request you to permit her to undergo the Industrial Training.

Thanking you!



Principal,  
10.6.16  
Jagadambha College of Engineering & Technology,  
Yavatmal  
Principal  
Jagadambha College of Engineering &  
Technology, Arni Road, Kintli, Yavatmal

Dr. Hemant M. Baradkar  
Principal





Jagadambha Bahuuddeshiya Gramin Vikas Sanstha's  
**JAGADAMBHA**  
**COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL**  
Reg. No. F - 7596 (Ytl.)

Date: 01/07/2016

To,  
The Head,  
Advance Training Institute,  
Mumbai

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Electrical Engineering of Jagadambha College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 11<sup>th</sup> July to 22<sup>nd</sup> July 2016. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Ankit Titirmare
2. Sneha Kharkar
3. Pallavi Damhare

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



Principal, *Salamkar*  
Jagadambha College of Engineering & Technology,  
Yavatmal

Jagadambha College of Engineering & Technology, Arni Road, Kinhi, Yavatmal

*HMB*  
Dr. Hemant M. Baradkar  
Principal

Jagadambha College of Engineering & Technology, Arni Road, Kinhi, Yavatmal

ARNI ROAD, YAVATMAL - 445 001 (M.S.) INDIA  
Tel : (07232) 244226, Fax : (07232) 244226 Mob. 9096548670  
Website : www.jcoet.org E-mail : principal@jcoet.org





Jagadamba Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA

## COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCET-16.17/420

Date: 15/11/2016

To,  
The D.C.,  
MSRTC,  
Yavatmal

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of Third year Mechanical Engineering of Jagadamba College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 22<sup>nd</sup> Dec to 24<sup>th</sup> Dec 2016. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Maamohan Ingole
2. Jitendra Payghan
3. Ramkrushna Denghale

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



*[Signature]*  
Principal,  
Jagadamba College of Engineering & Technology,  
Arni Road, Kinhi, Yavatmal

*[Signature]*  
Principal,  
Jagadamba College of Engineering & Technology, Arni Road, Kinhi, Yavatmal

*[Signature]*  
Dr. Hemant M. Baradkar  
Principal





Jagadamba Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA

## COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCE& 16-17/278

Date: 06/12/2016

To,  
The HR,  
Thermal Power Station,  
Chandrapur

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of **Third year Electrical Engineering** of Jagadamba College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from 15<sup>th</sup> Dec to 7<sup>th</sup> Jan 2017. This training will help them to pursue and learn the practical aspects of theory learnt in the classroom.

Following is the list of interested candidates.

1. Madhuri Wadekar
2. Shreya Junankar
3. Rupesh Datey

Hence, we humbly request you to permit them to undergo the Industrial Training.

Thanking you!



Principal *Salamber*  
Jagadamba College of Engineering & Technology,  
Yavatmal

Principal  
Jagadamba College of Engineering &  
Technology, Arni Road, Kinli, Yavatmal

*Dr. Hemant M. Baradkar*  
Principal