



JAGADAMBHA BAHUDDHESIYA 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

## JAGADAMBHA COLLEGE OF ENGINEERING AND TECHNOLOGY YAVATMAL

NAAC

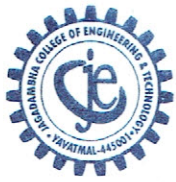
Criteria I

*1.3.2 Average Percentage of courses that include experiential learning through project work/field work/internship during the Academic Year 2017-18*

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

Tel. / Fax : 07232-291444, Mob. : 9011083260

Wbsite : [www.jcoet.org](http://www.jcoet.org), Email : [principal@jcoet.org](mailto:principal@jcoet.org), [principal.jcoet@gmail.com](mailto:principal.jcoet@gmail.com)



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**

## INDEX

Sr. No.	Particulars	Page No.
1	Summary Sheet	I
2	List of courses that include experiential learning through project work/field work/internship during the Academic Year 2017-18	1-18
3	Supporting documents for courses that include experiential learning through project work/field work/internship during the Academic Year 2017-18	19-71

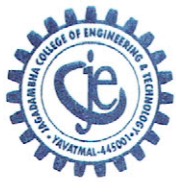


**Dr. Hemant M. Baradkar**  
**Principal**  
Jagadamba College of Engineering &  
Technology, Arni Road, Kinhi, Yavatmal

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

Tel. / Fax : 07232-291444, Mob. : 9011083260

Wbsite : [www.jcoet.org](http://www.jcoet.org), Email : [principal@jcoet.org](mailto:principal@jcoet.org), [principal.jcoet@gmail.com](mailto:principal.jcoet@gmail.com)



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**

*1.3.2 Average Percentages of courses that include experiential learning through project work/field work/internship during the Academic Year 2017-18*

### SUMMARY SHEET

Sr. No.	Particulars	No. of courses	Page No.
1.	B.E. Electrical Engineering	45	1-2
2.	B.E. Computer Engineering	50	2-3
3.	B.E. Electronics & Telecommunication Engineering	51	3-5
4.	B.E. Mechanical Engineering	56	5-7
5.	B.E. Civil Engineering	53	7-8



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

I

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

Tel. / Fax : 07232-291444, Mob. : 9011083260

Wbsite : [www.jcoet.org](http://www.jcoet.org), Email : [principal@jcoet.org](mailto:principal@jcoet.org), [principal.jcoet@gmail.com](mailto:principal.jcoet@gmail.com)





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**

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

Academic Year 2017-18

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
11	B.E. Electrical Engg	112729310	Electrical Machine-I-Lab	4EE06	2011-2012
12	B.E. Electrical Engg	112729310	Analog & Digital Circuits - Lab	4EE07	2011-2012
13	B.E. Electrical Engg	112729310	Control Systems-I	5EE01	2012-2013
14	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller	5EE02	2012-2013
15	B.E. Electrical Engg	112729310	Electrical Machines-II	5EE03	2012-2013
16	B.E. Electrical Engg	112729310	Signals & Systems	5EE04	2012-2013
17	B.E. Electrical Engg	112729310	Free Elective-I : Consumer Electronics	5FEEXT05	2012-2013
18	B.E. Electrical Engg	112729310	Communication Skills	5EE06	2012-2013
19	B.E. Electrical Engg	112729310	Control Systems- Lab	5EE07	2012-2013
20	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller - Lab	5EE08	2012-2013
21	B.E. Electrical Engg	112729310	Electrical Machines-II – Lab	5EE09	2012-2013
22	B.E. Electrical Engg	112729310	Communication Skills - Lab	5EE10	2012-2013
23	B.E. Electrical Engg	112729310	Electrical Power-I	6EE01	2012-2013
24	B.E. Electrical Engg	112729310	Optimization Techniques	6EE02	2012-2013
25	B.E. Electrical Engg	112729310	Power Electronics	6EE03	2012-2013
26	B.E. Electrical Engg	112729310	Computer Aided Machine Design	6EE04	2012-2013
27	B.E. Electrical Engg	112729310	Free Elective-II : Electronic Test Instruments - Analog & Digital	6FEEXT5	2012-2013
28	B.E. Electrical Engg	112729310	Electrical Energy Utilization	6EE06	2012-2013



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

Tel : 07232-291444, Mob. : 9011083260


Website : [www.jcoet.org](http://www.jcoet.org), Email : [principal@jcoet.org](mailto:principal@jcoet.org), [principal.jcoet@gmail.com](mailto:principal.jcoet@gmail.com)

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



29	B.E. Electrical Engg	112729310	Power Electronics - Lab	6EE07	2012-2013
30	B.E. Electrical Engg	112729310	Computer Aided Machine Design - Lab	6EE08	2012-2013
31	B.E. Electrical Engg	112729310	Electrical Energy Utilization - Lab	6EE09	2012-2013
32	B.E. Electrical Engg	112729310	Control System-II	7EE01	2013-2014
33	B.E. Electrical Engg	112729310	Power System Operation & Control	7EE02	2013-2014
34	B.E. Electrical Engg	112729310	Electrical Power-II	7EE03	2013-2014
35	B.E. Electrical Engg	112729310	Switchgear & Protection	7EE04	2013-2014
36	B.E. Electrical Engg	112729310	Professional Elective-I : Computer Methods in Power System Analysis	7EE05	2013-2014
37	B.E. Electrical Engg	112729310	Project & Seminar	7EE06	2013-2014
38	B.E. Electrical Engg	112729310	Electrical Power-II - Lab	7EE07	2013-2014
39	B.E. Electrical Engg	112729310	Switchgear & Protection - Lab	7EE08	2013-2014
40	B.E. Electrical Engg	112729310	Power System Stability	8EE01	2013-2014
41	B.E. Electrical Engg	112729310	High Voltage Engg	8EE02	2013-2014
42	B.E. Electrical Engg	112729310	Digital Signal Processing	8EE03	2013-2014
43	B.E. Electrical Engg	112729310	Professional Elective-II : Electric Drives & Control	8EE04	2013-2014
44	B.E. Electrical Engg	112729310	Project & Seminar	8EE05	2013-2014
45	B.E. Electrical Engg	112729310	Digital Signal Processing - Lab	8EE06	2013-2014
46	B.E. Computer Engg	112724510	Programing Methodology	3KE02	2011-2012
47	B.E. Computer Engg	112724510	Electronic Devices and circuits	3KE03	2011-2012
48	B.E. Computer Engg	112724510	Discret structure	3KE04	2011-2012
49	B.E. Computer Engg	112724510	Computer organization	3KE05	2011-2012
50	B.E. Computer Engg	112724510	Programing Methodology-Lab	3KE06	2011-2012
51	B.E. Computer Engg	112724510	Electronic Devices and circuits-lab	3KE07	2011-2012
52	B.E. Computer Engg	112724510	Computer Lab-I (Web Technology)	3KE08	2011-2012
53	B.E. Computer Engg	112724510	Data structure	4KE01	2011-2012
54	B.E. Computer Engg	112724510	Analog & Digital ICS	4KE02	2011-2012
55	B.E. Computer Engg	112724510	Object oriented programing	4KE03	2011-2012
56	B.E. Computer Engg	112724510	Assembly language programming	4KE04	2011-2012
57	B.E. Computer Engg	112724510	Theory of computation	4KE05	2011-2012
58	B.E. Computer Engg	112724510	Data structure-lab	4KE06	2011-2012
59	B.E. Computer Engg	112724510	Analog & Digital ICS-lab	4KE07	2011-2012
60	B.E. Computer Engg	112724510	Object oriented programing-lab	4KE08	2011-2012
61	B.E. Computer Engg	112724510	Assembly language programming-lab	4KE09	2011-2012
62	B.E. Computer Engg	112724510	Data Communication	5KE01	2012-2013
63	B.E. Computer Engg	112724510	File structure and data processing	5KE02	2012-2013
64	B.E. Computer Engg	112724510	System Software	5KE03	2012-2013
65	B.E. Computer Engg	112724510	Switching theory and logic design	5KE04	2012-2013
66	B.E. Computer Engg	112724510	Free Elective-I (Production Management)	5FEME05	2012-2013
67	B.E. Computer Engg	112724510	Communication skills	5KE06	2012-2013
68	B.E. Computer Engg	112724510	System Software-lab	5KE07	2012-2013
69	B.E. Computer Engg	112724510	Switching theory and logic design-lab	5KE08	2012-2013
70	B.E. Computer Engg	112724510	Communication skills-lab	5KE09	2012-2013



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



71	B.E. Computer Engg	112724510	Operating system	6KE01	2012-2013
72	B.E. Computer Engg	112724510	Database System	6KE02	2012-2013
73	B.E. Computer Engg	112724510	Computer resource management	6KE03	2012-2013
74	B.E. Computer Engg	112724510	Computer Architecture	6KE04	2012-2013
75	B.E. Computer Engg	112724510	Free elective II: Introduction to Wireless Technology	6FEEXT5	2012-2013
76	B.E. Computer Engg	112724510	Professional Ethics	6KE06	2012-2013
77	B.E. Computer Engg	112724510	Operating system-lab	6KE07	2012-2013
78	B.E. Computer Engg	112724510	Database System-lab	6KE08	2012-2013
79	B.E. Computer Engg	112724510	Computer lab-II (Hardware)	6KE09	2012-2013
80	B.E. Computer Engg	112724510	Signal And System	7KE01	2013-2014
81	B.E. Computer Engg	112724510	Computer Networks	7KE02	2013-2014
82	B.E. Computer Engg	112724510	Microprocessor and Interfacing	7KE03	2013-2014
83	B.E. Computer Engg	112724510	Mobile computing	7KE04	2013-2014
84	B.E. Computer Engg	112724510	Professional Elective-I : Computer Graphics	7KE05	2013-2014
85	B.E. Computer Engg	112724510	Computer Networks-lab	7KE06	2013-2014
86	B.E. Computer Engg	112724510	Microprocessor and Interfacing-lab	7KE07	2013-2014
87	B.E. Computer Engg	112724510	Mobile computing-lab	7KE08	2013-2014
88	B.E. Computer Engg	112724510	Project and seminar	7KE09	2013-2014
89	B.E. Computer Engg	112724510	Digital signal processing	8KE01	2013-2014
90	B.E. Computer Engg	112724510	Embedded system	8KE02	2013-2014
91	B.E. Computer Engg	112724510	Software Engg	8KE03	2013-2014
92	B.E. Computer Engg	112724510	Professional Elective-II : Multimedia technologies	8KE04	2013-2014
93	B.E. Computer Engg	112724510	Digital signal processing-lab	8KE05	2013-2014
94	B.E. Computer Engg	112724510	Embedded system -lab	8KE06	2013-2014
95	B.E. Computer Engg	112724510	Project and seminar	8KE07	2013-2014
96	B.E.Elect.Tel.Comm. Engg	112737210	Object Oriented Programming	3ET2	2017-2018
97	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Circuits	3ET3	2017-2018
98	B.E.Elect.Tel.Comm. Engg	112737210	Intrumentation & Sensors	3ET4	2017-2018
99	B.E.Elect.Tel.Comm. Engg	112737210	Electromagnetic Fields	3ET5	2017-2018
100	B.E.Elect.Tel.Comm. Engg	112737210	Environmental Science	3ET6	2017-2018
101	B.E.Elect.Tel.Comm. Engg	112737210	Object Oriented Programming Lab	3ETp7	2017-2018
102	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Circuits Lab	3ETp8	2017-2018
103	B.E.Elect.Tel.Comm. Engg	112737210	Skill Development Lab -I	3ETp9	2017-2018



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



104	B.E.Elect.Tel.Comm. Engg	112737210	Signals & Systems	4ET1	2017-2018
105	B.E.Elect.Tel.Comm. Engg	112737210	Network Analysis	4ET2	2017-2018
106	B.E.Elect.Tel.Comm. Engg	112737210	Analog Electronics - I	4ET3	2017-2018
107	B.E.Elect.Tel.Comm. Engg	112737210	Digital Electronics	4ET4	2017-2018
108	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engg-I	4ET5	2017-2018
109	B.E.Elect.Tel.Comm. Engg	112737210	Environmental Science	4ET6	2017-2018
110	B.E.Elect.Tel.Comm. Engg	112737210	Analog Electronics - I Lab	4ETp7	2017-2018
111	B.E.Elect.Tel.Comm. Engg	112737210	Digital Electronics Lab	4ETp8	2017-2018
112	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engg-I Lab	4ETp9	2017-2018
113	B.E.Elect.Tel.Comm. Engg	112737210	Skill Development Lab -II (Software)	4ETp10	2017-2018
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



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



127	B.E.Elect.Tel.Comm. Engg	112737210	Digital Communication	6XT4	2012-2013
128	B.E.Elect.Tel.Comm. Engg	112737210	Free Elective II: Jawa 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
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: Satellite & Optical Fiber Communication	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

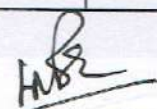


*Handwritten signature*  
Principal  
Jagadamba College of Engineering & Technology, Arni Road, Kinhi, Yavatmal



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
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 Software 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	6FECE05	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	8ME01	2013-2014




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



195	B.E. Mechanical Engg	112761210	Professional Elective-II: Refrigeration & Air Conditioning	8ME02	2013-2014
196	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design	8ME02	2013-2014
197	B.E. Mechanical Engg	112761210	I.C. Engines	8ME03	2013-2014
198	B.E. Mechanical Engg	112761210	Operation Research Techniques	8ME04	2013-2014
199	B.E. Mechanical Engg	112761210	Project & Seminar	8ME05	2013-2014
200	B.E. Mechanical Engg	112761210	Professional Elective-II: Refrigeration & Air Conditioning-Lab	8ME06	2013-2014
201	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design-Lab	8ME06	2013-2014
202	B.E. Mechanical Engg	112761210	I.C. Engines-Lab	8ME07	2013-2014
203	B.E. Civil Engg	112719110	Strength Of Materials	3CE02	2011-2012
204	B.E. Civil Engg	112719110	Transportation Engg-I	3CE03	2011-2012
205	B.E. Civil Engg	112719110	Building Construction AND Materials	3CE04	2011-2012
206	B.E. Civil Engg	112719110	Engineering Geology	3CE05	2011-2012
207	B.E. Civil Engg	112719110	Strength Of Materials - Lab	3CE06	2011-2012
208	B.E. Civil Engg	112719110	Transportation Engg - Lab	3CE07	2011-2012
209	B.E. Civil Engg	112719110	Building Construction AND Materials Lab	3CE08	2011-2012
210	B.E. Civil Engg	112719110	Engineering Geology - Lab	3CE09	2011-2012
211	B.E. Civil Engg	112719110	Geotechnical Engg-I	4CE01	2011-2012
212	B.E. Civil Engg	112719110	Fluid Mechanics-I	4CE02	2011-2012
213	B.E. Civil Engg	112719110	Theory Of Structures-I	4CE03	2011-2012
214	B.E. Civil Engg	112719110	Surveying-I	4CE04	2011-2012
215	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I	4CE05	2011-2012
216	B.E. Civil Engg	112719110	Geotechnical Engg-I -Lab	4CE06	2011-2012
217	B.E. Civil Engg	112719110	Fluid Mechanics-I - Lab	4CE07	2011-2012
218	B.E. Civil Engg	112719110	Surveying-I - Lab	4CE08	2011-2012
219	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I - Lab	4CE09	2011-2012
220	B.E. Civil Engg	112719110	Reinforced Cement Concrete-II	5CE01	2012-2013
221	B.E. Civil Engg	112719110	Fluid Mechanics-II	5CE02	2012-2013
222	B.E. Civil Engg	112719110	Building Planning AND CAD	5CE03	2012-2013
223	B.E. Civil Engg	112719110	Surveying-II	5CE04	2012-2013
224	B.E. Civil Engg	112719110	Professional Elective-I (Production Management)	5FEME05	2012-2013
225	B.E. Civil Engg	112719110	Communication Skills	5CE06	2012-2013
226	B.E. Civil Engg	112719110	Fluid Mechanics-II-Lab	5CE07	2012-2013
227	B.E. Civil Engg	112719110	Building Planning AND CAD- Lab	5CE08	2012-2013
228	B.E. Civil Engg	112719110	Surveying-II-Lab	5CE09	2012-2013
229	B.E. Civil Engg	112719110	Communication Skills-Lab	5CE10	2012-2013
230	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming	6CE01	2012-2013
231	B.E. Civil Engg	112719110	Structural Design-I	6CE02	2012-2013
232	B.E. Civil Engg	112719110	Water Resources Engg-I	6CE03	2012-2013



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



233	B.E. Civil Engg	112719110	Transportation Engg-II	6CE04	2012-2013
234	B.E. Civil Engg	112719110	Free Elective-II(Non conventional energy system)	6FEME05	2012-2013
235	B.E. Civil Engg	112719110	Estimating AND Costing	6CE06	2012-2013
236	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming-Lab	6CE07	2012-2013
237	B.E. Civil Engg	112719110	Structural Design-I-Lab	6CE08	2012-2013
238	B.E. Civil Engg	112719110	Estimating AND Costing-Lab	6CE09	2012-2013
239	B.E. Civil Engg	112719110	Minor Project-Lab	6CE10	2012-2013
240	B.E. Civil Engg	112719110	Theory Of Structures-II	7CE01	2013-2014
241	B.E. Civil Engg	112719110	Geotechnical Engg-II	7CE02	2013-2014
242	B.E. Civil Engg	112719110	Structural Design-II	7CE03	2013-2014
243	B.E. Civil Engg	112719110	Environmental Engg-I	7CE04	2013-2014
244	B.E. Civil Engg	112719110	Professional Elective-I: Advanced Earthquake Engg	7CE05	2013-2014
245	B.E. Civil Engg	112719110	Theory Of Structures-II - Lab	7CE06	2013-2014
246	B.E. Civil Engg	112719110	Geotechnical Engg-II - Lab	7CE07	2013-2014
247	B.E. Civil Engg	112719110	Structural Design-II - Lab	7CE08	2013-2014
248	B.E. Civil Engg	112719110	Project and Seminar	7CE09	2013-2014
249	B.E. Civil Engg	112719110	Water Resources Engg-II	8CE01	2013-2014
250	B.E. Civil Engg	112719110	Environmental Engg-II	8CE02	2013-2014
251	B.E. Civil Engg	112719110	Project Planning AND Management	8CE03	2013-2014
252	B.E. Civil Engg	112719110	Professional Elective-II: Advanced Waste Water AND Industrial Waste Treatment	8CE04	2013-2014
253	B.E. Civil Engg	112719110	Water Resources Engg-II - Lab	8CE05	2013-2014
254	B.E. Civil Engg	112719110	Environmental Engg-II - Lab	8CE06	2013-2014
255	B.E. Civil Engg	112719110	Project AND Seminar	8CE07	2013-2014



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





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

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

Academic Year 2017-18

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	✓		
11	B.E. Electrical Engg	112729310	Electrical Machine-I-Lab	4EE06	✓		✓
12	B.E. Electrical Engg	112729310	Analog & Digital Circuits - Lab	4EE07	✓		✓
13	B.E. Electrical Engg	112729310	Control Systems-I	5EE01	✓		
14	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller	5EE02	✓		✓
15	B.E. Electrical Engg	112729310	Electrical Machines-II	5EE03	✓		✓
16	B.E. Electrical Engg	112729310	Signals & Systems	5EE04	✓		
17	B.E. Electrical Engg	112729310	Free Elective-I : Consumer Electronics	5FEEXT05	✓		
18	B.E. Electrical Engg	112729310	Communication Skills	5EE06	✓		
19	B.E. Electrical Engg	112729310	Control Systems- Lab	5EE07	✓		
20	B.E. Electrical Engg	112729310	Microprocessor & Microcontroller - Lab	5EE08	✓		✓
21	B.E. Electrical Engg	112729310	Electrical Machines-II – Lab	5EE09	✓		✓
22	B.E. Electrical Engg	112729310	Communication Skills - Lab	5EE10	✓		
23	B.E. Electrical Engg	112729310	Electrical Power-I	6EE01	✓		
24	B.E. Electrical Engg	112729310	Optimization Techniques	6EE02	✓		
25	B.E. Electrical Engg	112729310	Power Electronics	6EE03	✓		✓
26	B.E. Electrical Engg	112729310	Computer Aided Machine Design	6EE04	✓		✓

ESTD 2009  
ARMI ROAD, YAVATMAL - 445001 ( M.S.) INDIA

Tel. / Fax : 02292-257444, Mob. : 9011083260

Wbsite : www.jcoet.org, Email : principal@jcoet.org, principal.jcoet@jcoet.org

Kinhi, Yavatmal

Principal

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



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




*Handwritten signature*

Principal



57	B.E. Computer Engg	112724510	Theory of computation	4KE05	✓		
58	B.E. Computer Engg	112724510	Data structure-lab	4KE06	✓		
59	B.E. Computer Engg	112724510	Analog & Digital ICS-lab	4KE07	✓		
60	B.E. Computer Engg	112724510	Object oriented programing-lab	4KE08	✓		
61	B.E. Computer Engg	112724510	Assembly language programming-lab	4KE09	✓		
62	B.E. Computer Engg	112724510	Data Communication	5KE01	✓		✓
63	B.E. Computer Engg	112724510	File structure and data processing	5KE02	✓		✓
64	B.E. Computer Engg	112724510	System Software	5KE03	✓		
65	B.E. Computer Engg	112724510	Switching theory and logic design	5KE04	✓		
66	B.E. Computer Engg	112724510	Free Elective-I (Production Management)	5FEME05	✓		
67	B.E. Computer Engg	112724510	Communication skills	5KE06	✓		✓
68	B.E. Computer Engg	112724510	System Software-lab	5KE07	✓		✓
69	B.E. Computer Engg	112724510	Switching theory and logic design-lab	5KE08	✓		
70	B.E. Computer Engg	112724510	Communication skills-lab	5KE09	✓		
71	B.E. Computer Engg	112724510	Operating system	6KE01	✓		✓
72	B.E. Computer Engg	112724510	Database System	6KE02	✓		✓
73	B.E. Computer Engg	112724510	Computer resource management	6KE03	✓		
74	B.E. Computer Engg	112724510	Computer Architecture	6KE04	✓		
75	B.E. Computer Engg	112724510	Free elective II: Introduction to Wireless Technology	6FEEXT 5	✓		
76	B.E. Computer Engg	112724510	Professional Ethics	6KE06	✓		
77	B.E. Computer Engg	112724510	Operating system-lab	6KE07	✓		
78	B.E. Computer Engg	112724510	Database System-lab	6KE08	✓		✓
79	B.E. Computer Engg	112724510	Computer lab-II (Hardware)	6KE09	✓		✓




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



80	B.E. Computer Engg	112724510	Signal And System	7KE01	✓		
81	B.E. Computer Engg	112724510	Computer Networks	7KE02	✓		✓
82	B.E. Computer Engg	112724510	Microprocessor and Interfacing	7KE03	✓		✓
83	B.E. Computer Engg	112724510	Mobile computing	7KE04	✓		✓
84	B.E. Computer Engg	112724510	Professional Elective-I : Computer Graphics	7KE05	✓		✓
85	B.E. Computer Engg	112724510	Computer Networks-lab	7KE06	✓		✓
86	B.E. Computer Engg	112724510	Microprocessor and Interfacing-lab	7KE07	✓		✓
87	B.E. Computer Engg	112724510	Mobile computing-lab	7KE08	✓		✓
88	B.E. Computer Engg	112724510	Project and seminar	7KE09	✓		✓
89	B.E. Computer Engg	112724510	Digital signal processing	8KE01	✓		✓
90	B.E. Computer Engg	112724510	Embedded system	8KE02	✓		✓
91	B.E. Computer Engg	112724510	Software engineering	8KE03	✓		✓
92	B.E. Computer Engg	112724510	Professional Elective-II : Multimedia technologies	8KE04	✓		✓
93	B.E. Computer Engg	112724510	Digital signal processing-lab	8KE05	✓		
94	B.E. Computer Engg	112724510	Embedded system -lab	8KE06	✓		
95	B.E. Computer Engg	112724510	Project and seminar	8KE07	✓		
96	B.E.Elect.Tel.Comm. Engg	112737210	Object Oriented Programming	3ET2	✓		✓
97	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Circuits	3ET3	✓		✓
98	B.E.Elect.Tel.Comm. Engg	112737210	Intrumentation & Sensors	3ET4	✓		✓
99	B.E.Elect.Tel.Comm. Engg	112737210	Electromagnetic Fields	3ET5	✓		
100	B.E.Elect.Tel.Comm. Engg	112737210	Environmental Science	3ET6	✓		
101	B.E.Elect.Tel.Comm. Engg	112737210	Object Oriented Programming Lab	3ETp7	✓		
102	B.E.Elect.Tel.Comm. Engg	112737210	Electronic Devices & Circuits Lab	3ETp8	✓		

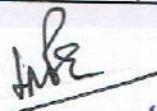


  
 Principal  
 Jagadamba College of Engineering &  
 Technology, Anni Road, Kuthi, Yavatmal



103	B.E.Elect.Tel.Comm. Engg	112737210	Skill Development Lab -I	3ETp9	✓		
104	B.E.Elect.Tel.Comm. Engg	112737210	Signals & Systems	4ET1	✓		
105	B.E.Elect.Tel.Comm. Engg	112737210	Network Analysis	4ET2	✓		
106	B.E.Elect.Tel.Comm. Engg	112737210	Analog Electronics - I	4ET3	✓		
107	B.E.Elect.Tel.Comm. Engg	112737210	Digital Electronics	4ET4	✓		
108	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engineering-I	4ET5	✓		
109	B.E.Elect.Tel.Comm. Engg	112737210	Environmental Science	4ET6	✓		
110	B.E.Elect.Tel.Comm. Engg	112737210	Analog Electronics - I Lab	4ETp7	✓		
111	B.E.Elect.Tel.Comm. Engg	112737210	Digital Electronics Lab	4ETp8	✓		
112	B.E.Elect.Tel.Comm. Engg	112737210	Communication Engineering-I Lab	4ETp9	✓		
113	B.E.Elect.Tel.Comm. Engg	112737210	Skill Development Lab -II (Software)	4ETp10	✓		
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	✓		




  
**Principal**  
 Jagadamba College of Engineering & Technology,  
 Kinhi, Yavatmal-431001



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: Jawa 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: Satellite & Optical Fiber Communication	7XT04	✓		
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	✓		



  
 Principal  
 Jagadamba College of Engineering &  
 Technology, Arni Road, Kinhi, Yavatmal-14



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	✓		✓
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	✓		✓



Principal  
 Jagadamba College of Engineering & Technology  
 Arni Road, Kinhi, Varadmal



172	B.E. Mechanical Engg	112761210	Theory of Mechines - I-Lab	5ME09	✓		✓
173	B.E. Mechanical Engg	112761210	Computer Softwere 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	6FEEE05	✓		
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	✓		✓
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: Refrigeration & Air Conditioning	8ME02	✓		
196	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design	8ME02	✓		
197	B.E. Mechanical Engg	112761210	I.C. Engines	8ME03	✓		✓
198	B.E. Mechanical Engg	112761210	Operation Research Techniques	8ME04	✓		✓
199	B.E. Mechanical Engg	112761210	Project & Seminar	8ME05	✓		✓
200	B.E. Mechanical Engg	112761210	Professional Elective-II: Refrigeration & Air Conditioning-Lab	8ME06	✓		✓
201	B.E. Mechanical Engg	112761210	Professional Elective-II: Machine Tool Design-Lab	8ME06	✓		✓
202	B.E. Mechanical Engg	112761210	I.C. Engines-Lab	8ME07	✓		
203	B.E. Civil Engg	112719110	Strength Of Materials	3CE02	✓		
204	B.E. Civil Engg	112719110	Transportation Engineering-I	3CE03	✓		
205	B.E. Civil Engg	112719110	Building Construction AND Materials	3CE04	✓		
206	B.E. Civil Engg	112719110	Engineering Geology	3CE05	✓		✓
207	B.E. Civil Engg	112719110	Strength Of Materials - Lab	3CE06	✓		✓
208	B.E. Civil Engg	112719110	Transportation Engineering - Lab	3CE07	✓		✓
209	B.E. Civil Engg	112719110	Building Construction AND Materials - Lab	3CE08	✓		
210	B.E. Civil Engg	112719110	Engineering Geology - Lab	3CE09	✓		
211	B.E. Civil Engg	112719110	Geotechnical Engineering-I	4CE01	✓		
212	B.E. Civil Engg	112719110	Fluid Mechanics-I	4CE02	✓		
213	B.E. Civil Engg	112719110	Theory Of Structures-I	4CE03	✓		
214	B.E. Civil Engg	112719110	Surveying-I	4CE04	✓	✓	
215	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I	4CE05	✓		
216	B.E. Civil Engg	112719110	Geotechnical Engineering-I -Lab	4CE06	✓		
217	B.E. Civil Engg	112719110	Fluid Mechanics-I - Lab	4CE07	✓		✓
218	B.E. Civil Engg	112719110	Surveying-I - Lab	4CE08	✓	✓	✓
219	B.E. Civil Engg	112719110	Reinforced Cement Concrete-I - Lab	4CE09	✓		✓
220	B.E. Civil Engg	112719110	Reinforced Cement Concrete-II	5CE01	✓		✓
221	B.E. Civil Engg	112719110	Fluid Mechanics-II	5CE02	✓		✓
222	B.E. Civil Engg	112719110	Building Planning AND CAD	5CE03	✓		
223	B.E. Civil Engg	112719110	Surveying-II	5CE04	✓	✓	
224	B.E. Civil Engg	112719110	Free Elective-I (Production Mangement)	5FEME05	✓		
225	B.E. Civil Engg	112719110	Communication Skills	5CE06	✓		




*Handwritten signature*

Principal  
Jyoti's College of Engineering & Technology, 10, N. S. Road, Yavatma



226	B.E. Civil Engg	112719110	Fluid Mechanics-II-Lab	5CE07	✓		
227	B.E. Civil Engg	112719110	Building Planning AND CAD- Lab	5CE08	✓		
228	B.E. Civil Engg	112719110	Surveying-II-Lab	5CE09	✓	✓	
229	B.E. Civil Engg	112719110	Communication Skills-Lab	5CE10	✓		
230	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming	6CE01	✓		
231	B.E. Civil Engg	112719110	Structural Design-I	6CE02	✓		
232	B.E. Civil Engg	112719110	Water Resources Engineering-I	6CE03	✓	✓	✓
233	B.E. Civil Engg	112719110	Transportation Engineering-II	6CE04	✓		✓
234	B.E. Civil Engg	112719110	Free Elective-II(Non conventional energy system)	6FEME05	✓		✓
235	B.E. Civil Engg	112719110	Estimating AND Costing	6CE06	✓		
236	B.E. Civil Engg	112719110	Numerical Methods AND Computer Programming-Lab	6CE07	✓		
237	B.E. Civil Engg	112719110	Structural Design-I-Lab	6CE08	✓		
238	B.E. Civil Engg	112719110	Estimating AND Costing-Lab	6CE09	✓		
239	B.E. Civil Engg	112719110	Minor Project-Lab	6CE10	✓		
240	B.E. Civil Engg	112719110	Theory Of Structures-II	7CE01	✓	✓	✓
241	B.E. Civil Engg	112719110	Geotechnical Engineering-II	7CE02	✓		✓
242	B.E. Civil Engg	112719110	Structural Design-II	7CE03	✓		✓
243	B.E. Civil Engg	112719110	Environmental Engineering-I	7CE04	✓		✓
244	B.E. Civil Engg	112719110	Professional Elective-I: Advanced Earthquake Engineering	7CE05	✓		
245	B.E. Civil Engg	112719110	Theory Of Structures-II - Lab	7CE06	✓		
246	B.E. Civil Engg	112719110	Geotechnical Engineering-II - Lab	7CE07	✓	✓	
247	B.E. Civil Engg	112719110	Structural Design-II - Lab	7CE08	✓	✓	
248	B.E. Civil Engg	112719110	Project and Seminar	7CE09	✓		
249	B.E. Civil Engg	112719110	Water Resources Engineering-II	8CE01	✓		✓
250	B.E. Civil Engg	112719110	Environmental Engineering-II	8CE02	✓	✓	✓
251	B.E. Civil Engg	112719110	Project Planning AND Management	8CE03	✓	✓	✓
252	B.E. Civil Engg	112719110	Professional Elective-II: Advanced Waste Water AND Industrial Waste Treatment	8CE04	✓		✓
253	B.E. Civil Engg	112719110	Water Resources Engineering-II - Lab	8CE05	✓		
254	B.E. Civil Engg	112719110	Environmental Engineering-II - Lab	8CE06	✓		✓
255	B.E. Civil Engg	112719110	Project AND Seminar	8CE07	✓		



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



#### Unit V: Frequency response methods

Frequency response of linear system, specification, Logarithmic frequency response (Bode) plots from transfer function for various systems. Polar plots for various systems. Estimation of approximate transfer functions from the frequency response.

#### Unit VI: Stability analysis from frequency response

Gain margin and Phase margin; Stability analysis from Bode plots. Nyquist criterion, Nyquist plots and stability analysis.

#### Books Recommended:

**Text Book:** Nagrath I.J., Gopal M.: Control System Engineering, Wiley Eastern.

#### Reference Books:

1. Control Engineering, D.Ganesh Rao, k. Chennavenkatesh, 2010, PEARSON
2. Ogata K.: Modern Control Systems, Prentice Hall of India.
3. Control Systems by K.R.Varmah TMH edition 2010
4. Linear Control Systems, Ashfaq Hussain, Haroon Ashfaq, Dhanpat Rai & Co.

SEE02 MICROPROCESSOR & MICROCONTROLLER

#### Course Outcomes:

After completing the course the students will be able to:

1. Recite Fundamentals and Architecture of Microprocessor 8085, Microcontroller 8051 2.
- Interpret Assembly Language Programming of Microprocessor 8085, Microcontroller 8051 3.
- Illustrate interfacing with Microprocessor 8085, Microcontroller 8051
4. Develop applications of Microprocessor 8085, Microcontroller 8051.

---

### -- SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2021 - PART TWO - 428

---

-- **Unit I :** 8085- architecture and Pin Diagram, Microprocessor Operations (Initiated, Internal and External) BUS organization and register structure, instruction set of 8085, addressing modes, Machine Cycles & Bus Timings.

**Unit II :** Assembly Language Programming of 8085, counters and time delays, stack and subroutines, Memory mapped I/O and I/O mapped I/O, address decoding techniques. Interrupt system of 8085, Data transfer schemes, serial data transfer through SOD and SID line.

**Unit III :** Programmable Interfacing devices: Internal architecture, programming and interfacing of Programmable Peripheral Interface PPI (8255), Programmable Interrupt Controller PIC (8259), Universal Synchronous Asynchronous Receiver Transmitter USART (8251) and Programmable Interval Timer PIT(8253)

**Unit IV: Introduction to microcontroller:** 8051 pin configuration and architecture, 8051 Internal resources, pin diagram, I/O pins, ports and their internal logic circuits, counters, serial ports, interrupt structure, SFRs and their addressing, watch-dog timer, internal code memory, data memory, stack pointer, flags, bit addressable memory.

**Unit V:** Instruction set of 8051. Addressing modes. Various groups of instructions: data transfer. Arithmetic- logical group. Interrupt, timer counter related instructions. Interfacing of 8051 with external memories. Programming 8051 with interfacing examples.

**Unit VI:** 8085 Microprocessors / 8051 Microcontroller Applications: hardware & software developments: signal conditioning & data acquisition system components. Measurement of Pulse width and Magnitude using 8085. Measurement of fundamental quantities -voltage, current, frequency, speed using 8051 Microcontroller.

#### Text Books:

1. Microprocessor Architecture, Programming, and Applications with the 8085, Ramesh Gaonkar PHI Publication-2006 2. The 8051 Microcontroller and Embedded Systems Mazidi, J.GMazidi, Mckinlay , Pearson Ed.

#### Reference Books:

1. An Introduction to Microcomputers, Adam Osborne Osborne-Mc-Graw Hill,
2. Advance Microprocessor and Peripherals, K.M.Bhurchandi & A.K.Ray, TMH, 2006.
3. Subrata Ghoshal "8051 Microcontroller" Pearson Education.
4. Richard Barnett , The 8051 Family of Microcontrollers Prentice-Hall, Inc-2000

SEE03 ELECTRICAL MACHINES -II

#### Course Outcomes:


After completing this course students will be able to:

1. Describe the construction, working operation & performance characteristics of the three phase Induction Motor
2. Analyze the starting, braking and speed control of three phase induction motors by various methods.
3. Describe the construction, working operation & performance characteristics of single -phase Induction Motor
4. Demonstrate the construction, working operation & performance characteristics of synchronous machine.
5. Explain the construction & working of special motors like Universal, Reluctance, PMSM & BLDC Motor.

#### Unit I: Three phase induction motor-I:

Construction, Types (squirrel cage and slipring), Rotating Magnetic Fields, Principle of operation, Torque Slip Characteristics, Starting and Maximum Torque. Effect of parameter variation on torque slip characteristics. Equivalent circuit, Phasor Diagram, Performance evaluation by direct & indirect testing, circle diagram.



  
Principal  
Jagadamba College of Engineering &  
Technology, Amravati



**Unit II : Three phase Induction Motor (IM) –II:**

Starters for squirrel cage & slip-ring type IM, Methods of speed control, electric braking, High Torque IM, single phasing, cogging and crawling, Doubly-Fed Induction Machines.

**Unit III: Single phase Induction Motor:**

Double revolving field theory, Constructional features, equivalent circuit, working, Split-phase starting methods and applications of single-phase Induction motors.

**Unit IV: Synchronous Generator:**

Constructional details, working principle, operation, armature reaction, circuit model, determinations of parameters of the circuit model and phasor diagram, methods of determining the regulations and efficiency, Parallel operation of alternators-Synchronization.

**Unit V: Synchronous Motor:**

Construction, principle of operation, working, starting methods, torque equation - V-curve, Inverted V curve & power angle characteristics, hunting & damping, applications. Transient, subtransient & steady state reactance of synchronous machines.

**Unit VI: Special Motors:**

Construction, working principle, operation, characteristics and applications of Universal motor, Reluctance Motor, Permanent Magnet Synchronous Motor & BLDC Motor.

**Text Books:**

1. D.P.Kothari & I.J.Nagrath, "Electrical Machines"-5<sup>th</sup> Edition, TMH Publication.
2. S.Langsdorf, "Alternating Current Machines", Mc-Graw Hill Publication.

**Reference Books:**

1. Fitzgerald and Kingsley's Electric Machinery", 7<sup>th</sup> Edition, McGraw Hill.
2. M.G.Say, "Performance and design of AC machines", CBS Publishers, 2002.
3. P.S.Bimbhra, "Electrical Machinery", Khanna Publishers, 2011.
4. C L Dawes, "A Course in Electrical Engineering (Volume -2)", McGraw Hill.

-----  
-- SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2021 - PART TWO - 429  
-----

**5EE04 Professional Elective-I : POWER SYSTEM OPERATION AND CONTROL**

**Course Outcomes:**

After completing this course student will be able to:

1. To impart knowledge to describe, calculate and analyze energy generation, unit commitment problem in thermal power plant, power system behavior and economics of generating costs.
2. To understand and analyze optimal dispatch with transmission losses, penalty factor and automatic load dispatch.
3. To learn the concept of real and reactive power flow and its control in power system.
4. To learn the automatic voltage regulator and automatic load frequency control.
5. To learn tie line interchange between interconnected utilities.
6. To illustrate various ways of interchange of power between interconnected utilities.
7. To impart knowledge about various advanced controllers such as FACTS controllers with its evolution, principle of operation, circuit diagram and applications

**Unit I : Economic Operation – Part I:**

Meaning of optimum scheduling, UCP and LSP; Input – Output characteristics, Heat rate characteristic, Incremental fuel rate, Incremental fuel cost; Methods of obtaining incremental fuel costs; Conditions for incremental loading; Optimum scheduling of generation between different units (Only Two plant system without transmission loss).

**Unit II : Economic Operation – Part II**

Transmission loss as a function of plant generation; Calculation of loss co-efficient (Two plant system); Incremental transmission loss; Optimum scheduling of generation between different plants including transmission loss; Concept and significance of penalty factor; Automatic load dispatch: Operation and Functions.

**Unit III : A. Generator Control Loops**

Concept of real and reactive power; Effect of real and reactive power on system parameters; Basic generator control loops.

**B. Automatic Voltage Regulator (AVR)**

Functions of AVR; Types of Exciter; Brushless AVR loop: Exciter modeling, Generator modeling, Transfer function block diagram representation, Static performance, dynamic response, Stability compensation, Effect of generator loading.

**Unit IV : Automatic Load Frequency Control**

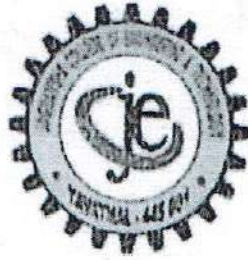
Automatic generation control (AGC); Speed governing system; Transfer function modeling: Governor, Hydraulic valve actuator, Turbine, Generator, Load; Transfer function representation of an isolated generator; Static performance of speed governor; Closing of ALFC loop.

**Unit V : Control Area:** eaning; Primary ALFC Loop: Static response, Dynamic response, physical interpretation of results; Secondary ALFC loop; Integral Control; Pool operation; Tie-line Modeling; Two area system – Dynamic response; Tie-line bias control.

**Unit VI : Energy Control of Power System :** Interchange of power between interconnected utilities, economy interchange evaluation, interchange evaluation with unit commitment, types of interchange, capacity and diversity interchange, energy banking, emergency power interchange, inadyent power exchange, power pools, Circuit diagram and applications of FACTS Technology SVC, TCSC, STATCOM and UPFC.







## CERTIFICATE

This is to certify that the Project Report entitled

**"AUTOMATIC DISCONNECTION OF ENERGY METER  
USING GSM AND MICROCONTROLLER"**

Submitted by

Mr. Akshay P. Jari

Ms. Neha S. Kale

Mr. Rahul G. Thawari

Ms. Pranjali S. Raut

Ms. Nishigundha A. Gode

Is in a partial fulfillment of the requirements for the award of Bachelor Degree in Electrical Engineering of Sant Gadge Baba Amravati University, Amravati and this bonafide work carried out and completed under my guidance and supervision during the session 2017-2018.

Prof. Ekeshwari A. Rangari

(Project Guide)

Prof. Dr. V.G. Neve

(Head of Department)

  
Dr. H. M. Baradkar  
21/07/18  
(Principal)  
M. W. N. N. N.  
External Examiner

Department of Electrical Engineering  
Jagadamba College of Engineering & Technology,  
Yavatmal 445001 (Maharashtra)  
(2017-18)

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



## ABSTRACT

The technology of e-metering (Electronic Metering) has gone through rapid technological advancements and there is increased demand for a reliable and efficient Automatic Meter Reading (AMR) system with energy bill recovery. This project presents the design of a simple low cost wireless GSM energy meter and its associated web interface, for automating billing and managing the electricity connection cut if consumer does not paid his electricity bill. The proposed system replaces traditional meter reading methods and enables remote access of existing energy meter by the energy provider. Also they can monitor the meter readings regularly without the person visiting each house. A GSM based wireless communication module is integrated with electronic energy meter of each entity to have remote access over the usage of electricity. A PC with a GSM receiver at the other end, which contains the database acts as the billing point. Live meter reading from the GSM enabled energy meter is sent back to this billing point periodically and these details are updated in a central database. The complete monthly usage and due bill is messaged back to the customer after processing these data.

**Keywords:** Automatic Meter Reading (AMR), Global System for Mobile communication (GSM), ATMEGA-16, etc.



  
Dr. Hemant M. Baradkar  
Principal  
Jsgadambha College of Engineering &  
Technology Arni Road, Kinhi, Yavatm



**Reference Books:**

1. Gayakwad, Op-Amp & LLG, 2nd Ed.
4. Malvino & Leach, Digital Principles & Applications, 4th Ed., McGraw Hill.
5. K.B.Botkar, Integrated Electronics (Khanna Publishers.)

**4EE05/4EX05 SIGNALS & SYSTEMS**

**Course Outcomes:**

After completing the course, students will be able to

1. Understand importance and applications of signals and systems
2. Classify Systems into various categories
3. Perform convolution of Analog and Discrete time signals
4. Convert Analog signal into discrete signal by using Sampling Method
5. Apply CTFT,Z-Transform, DTFT, FFT for the analysis of Various Signals and Systems.

**Unit-I :**

Introduction to Signals and Systems: Signals and Systems, Classification of Signals, Classification of Systems, Some Ideal Signals, Energy and Power Signals, Discretization of Continuous-Time Signals, Analysis of Continuous-Time Systems, Time Domain, Properties of Elementary Signals Linear Convolution Integral, Response of Continuous-Time Systems.

**Unit-II :**

Fourier series and Its Properties Fourier Transform Properties of Fourier Transform, Tables of Fourier Transform Pairs Fourier Transform of Periodic Signals, Frequency-Domain Analysis of Systems Fourier analysis of Sampled Signals

**Unit-III :**

Analysis of LTI Discrete-Time Systems: Time Domain and Frequency Domain, Properties of Discrete-Time Sequences Linear Convolution, Discrete-Time System Response.

**Unit-IV :**

Sampling: Representation of a continuous-Time Signal by its Samples; The Sampling Theorem; Reconstruction of Signals from its Samples using Interpolation; Effect of Under Sampling (Frequency Domain Aliasing); Discrete Time processing of Continuous-Time Signals

**Unit-V :**

The Z Transform: The Z Transform; The Region of Convergence for the Z- Transform; Geometric Evaluation of the Fourier Transform from the Pole-Zero Plot; Properties of Z-Transform; Analysis and Characterization of Discrete-Time LTI Systems using Z-Transform; System Transfer Function; Block Diagram Representation; The Unilateral Z-Transform; Solution of Difference Equation using the Unilateral Z-Transform.

**Unit-VI :**

Discrete Fourier Transform and Fast Fourier Transform Representation of Discrete-Time aperiodic signals and the Discrete-Time Fourier Transform; Fourier Transform for Periodic Signals; Properties of the Discrete-Time Fourier Transform; Discrete-Time LTI Systems and Discrete-Time Fourier Transform

**Text Book:** Signals and systems, Oppenheim and Schafer PHI. 2nd Edition 1997

**Reference Books:**


1. Signals & Systems, Smarajit Ghosh, PEARSON education, 2006
2. Signals And Systems , S.Haykin, 2nd Edition, John Wiley And Sons 1999
3. Analog And Digital Signal Processing , Ambardar A, 2/3; Thomson Learning-2005

**4EX06 ELECTRICAL MEASUREMENTS & INSTRUMENTATION- LAB**

Minimum eight experiments based on the syllabus content of 4EE02/4EP02/4EX02 Electrical Measurements & Instrumentation. The intensive list of experiment is given below.

1. Measurements of Low resistance by using Kelvin double Bridge.
2. Measurements of Medium resistance by Ammeter Voltmeter method/Wheatstone Bridge



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



## SEE04 ELECTIVE II

### I ELECTRIC DRIVES & CONTROL

#### SECTION-A

- UNIT I** **Introduction to Electrical Drives:** Concept, Classification and Advantages. Basic elements, Components of load torque, Torque equation, Equivalent values of drive parameters. Types of mechanical loads. Selection of motor and Controller, Classes of duty, Stability of an electrical drive. Comparison of AC and DC drives.
- UNIT II** **Starting and Braking of Electrical Drives:** Solid-state starters, soft starting, Calculation of starting/acceleration/reversal time and energy loss during starting. Types, advantages, limitations and purposes/objectives of electrical braking, Braking of d c and induction motors.
- UNIT III** **DC Drive Control** Basic machine equations, scheme of control, Single phase separately excited drives, single-phase-series motor drives, power factor improvement, Three-phase separately excited drive, Closed loop control. PLL control, microcomputer control.

#### SECTION-B

- Unit-IV** **Ac drive control:** Basic principle of operation, speed control of induction motor, stator voltage control, variable frequency control, Rotor resistance control, slip-power recovery scheme, Synchronous motor drive, Microprocessor controlled AC Drive.
- UNIT V** Vector controlled Drive, Principle of Vector Control, Equivalent ckt. Direct v.c., Flux vector estimation, Indirect v.c., v.c. of line side pular rectifer exator flux oriented v.c., v.c. of current fed inverter drive & cycloconverter drive servorless control speed estimation controls – EKF method
- UNIT-VI** Direct torque & adoptaive controlled Drive Torque Expression o& control strategy self tuning control MRAC sliding mode control self commissioning of drive, Study of electrical drives in rolling mills, paper mills, cement mills, sugar mills, textile mills, traction and machine tool applications.

#### References:

1. Power Electronics : ( Converts, Application & Design) – Mohan/ Undeland/ Rossing- John wiley
2. Power Electronics : M.D. Singh, K.B. Khan Chardalli – TMH
3. Power Electronics : M.H. Rashid – Pearson Education
4. B.K. Bose : Modern Power Electronics and AC Drive, Pearson Education
5. G. K. Dubey Fundamentals of Electrical Drives, , Narosa Publishing House, 2005
6. Electric Drives – Concepts & Applications by V.Subrahmanyam, TMH 2<sup>nd</sup> edition 2010



*[Signature]*  
Principal  
Sandamba College of Engineering & Technology





## CERTIFICATE

This is to certify that the project Report entitled

**VOICE RECOGNITION BASED WHEELCHAIR**

Submitted by  
MISS. JYOTI R. VYAVHARE


MISS. SONI S. DOIFODE


MISS. PUNAM V. DAMBHARE

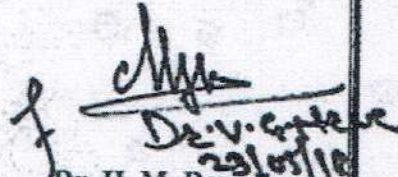
MR. ASHISH P. THAKARE

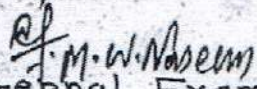
MR. SANDESH D. WANKHEDE

Is in a partial fulfillment of the requirements for the award of Bachelor Degree in *Electrical Engineering* of Sant Gadge Baba Amravati University, Amravati and this bonafide work carried out and completed under my guidance and supervision during the session 2017-2018.


  
Prof. P. H. Kadam  
Project Guide

  
Dr. V. G. Neve  
Head of Department

  
Dr. H. M. Baradkar  
Principal

  
External Examiner  
Department of Electrical Engineering

Jagadamba College of Engineering And Technology,  
Yavatmal – 445001 (Maharashtra)

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






## ABSTRACT

Physically challenged and old people those who face many problems in daily life have to be depend on a another person to move from one place to another. Many scientists and researchers have been working for to find out the solution from a long time. The invention of wheel chair is a great boon for them but it still limits their motion. In order to make their life a bit easier, many modification in wheel chairs are came into existing such as electric-powered, gesture based, eye movement, finger movement etc. Speech controlled wheel chair can be made using arduino uno microcontroller and HM2007 speech recognition kit. In that research first we stored the user's voice and then this wheelchair robot will recognition this voice and follow their commands.

More than 1 billion people in the world have some form of disability. The aim of this project is to design and develop a smart wheelchair which can be controlled by the head gesture as well as with the help of voice commands. This project will facilitate the movement of people who are disabled or handicapped. The result of this project will help such people to live a life with less dependence on others. A wheelchair is an electric wheelchair fitted with acceleration sensors, ultrasonic sensor and voice recognition module .The user can control the movement of chair by sending the voice commands such as Forward, Reverse, Left, Right and Stop.



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



**Text Books :-**

1. O. L. Elgerd Electric Energy Systems Theory: An Introduction – 2<sup>nd</sup> edition, McGraw -Hill Book Comp. N. Y. 1987.
2. Power System Operation & Control, N.V.Ramana, PEARSON education, 2010.

**Reference Books :**

1. L. K. Kirchamayar – Economic Operation of Power System- Wiley Estern Pvt. Ltd., New Delhi.
2. Hadi Saadat – Power System Analysis – WCB/McGraw-Hill International Edition 1999
3. I.J. Nagrath, D. P. Kothari – Modern Power System Analysis – Second edition, Tata Mc-Graw Hill Publishing Company, New Delhi
4. P. S. R. Murty – Power System Operation and Control – Tata Mc-Graw Hill Publishing Company, New Delhi.

**5EE04 Professional Elective – I  
ELECTRICAL ENGINEERING MATERIAL**

**Course Outcomes:**

After completing this course student will be able to :

1. Understand importance of electrical engineering materials
2. Understand how electric conduction takes place in conductors
3. Understand importance of semiconductors and magnetic materials in electrical engineering.
4. Understand importance of dielectric materials in electrical engineering.
5. Identify the need of special materials in electrical engineering.

**Unit-I Introduction to Electrical Engineering Materials:** Importance of materials, Classification of electrical materials, Scope of electrical materials, Requirement of Engineering materials, Types of engineering materials, Levels of material structure.

**Unit-II Conducting Materials:** Review of metallic conduction on the basis of free electron theory, variation of conductivity with temperature and composition, materials for electric resistors- General Electric properties; material for brushes of electrical machines, lamp filaments, fuses and solder.

**Unit-III Semi conductors: Semiconductors:** Mechanism of conduction in semiconductors, types of semiconductors, Hall effect, compound semiconductors, basic ideas of amorphous and organic semiconductors.

--- SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2021 - PART TWO - 430 ---

**Unit-IV Magnetic Materials:**

Classification of magnetic materials- origin of permanent magnetic dipoles, magneto materials used in electrical machines, instruments and relays. Magnetic Circuit terminology, Relation between relative permeability and magnetic susceptibility. Classification of magnetic materials, Diamagnetic, Paramagnetic, Ferromagnetic, Anti ferromagnetic. Magnetization curve, Initial and maximum permeability. Hysteresis loop and loss, Eddy current loss.

**Unit-V Dielectrics & Insulating Materials:** Dielectrics, Factors influencing dielectric strength. Capacitor materials. Insulating materials. Insulating Materials: Inorganic materials (mica, glass, porcelain, asbestos), organic materials (paper, rubber, cotton silk fiber, wood, plastics and bakelite), resins and varnishes, liquid insulators (transformer oil) gaseous insulators (air, SF<sub>6</sub> and nitrogen) and ageing of insulators.

**Unit-VI Materials For Special Applications:** Materials for solar cells, fuel cells and battery. Materials for coatings for enhanced solar thermal energy collection and solar selective coatings, Cold mirror coatings, heat mirror coatings, antireflection coatings, sintered alloys for breaker and switch contacts.

**Text Book:** Electrical Engineering Materials by Dekker A.J (PHI)

**Reference Books:**

1. S.P.Seth Electrical Engineering Materials (Dhanpat rai and Sons)
2. C. S Indulkar & S. Thiruveldgam, an Introduction to Electrical Engineering Materials (S Chand Publication)

**5EE04 Professional Elective – I  
ELECTRONIC COMMUNICATION THEORY**

**Course Outcomes:**

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

1. Explain various types of signal & elements of communication system.
2. Analyze the signal using Fourier Transform
3. Apply Amplitude modulation & Frequency modulation on the communication signal
4. Compare Pulse communication & Digital communication
5. Describe microwave communication system

**Unit I: Introduction to Electronics Communication Systems:**

Signals: Analog & digital, Deterministic & Non-deterministic, Periodic & nonperiodic, Elements of Communication Systems, Transmitter, Receiver, Need for Modulation, band width requirements, Noise, External, internal noise, noise calculation, noise figure.

**Unit II : Signal Analysis:**

Fourier Series, Exponential Fourier Series, Fourier Transform, Properties of Fourier Transform, Dirac Delta Function, Fourier Transform of Periodic functions, Fundamental of Power Spectral Density & Energy Spectral Density.



*[Signature]*  
Principal  
Jagadamba College of Engineering & Technology, Arni Road, Kirthi, Warananagar



## 8EE03 DIGITAL SIGNAL PROCESSING

### SECTION - A

- UNIT-I : Introduction to DSP, Frequency domain description of signals & systems, Discrete time sequences systems, Linearity unit sample response, Convolution, Time invariant system, Stability criteria for discrete time systems, Solutions of linear difference equations.
- UNIT-II : Introduction to Fourier transform of Discrete Time Signal and its properties, Inverse Fourier transform, DFT and its properties , Circular convolution, Linear convolution from DFT, FFT, decimation in time and frequency algorithm.
- UNIT-III : Sampling of Bandpass signals-Representation of Bandpass signals, sampling of bandpass signals, discrete time processing of continuous time signal; Analog to digital conversion-sample and hold, quantization and coding, analysis of quantization errors, oversampling of A/D converter; Digital to Analog conversion-sample and hold, first order hold, linear interpolation with delay, oversampling of D/A converter


### SECTION-B

- UNIT-IV : Filter categories, Direct form I, Direct form II, Cascade and parallel structure for IIR and FIR Filter, Frequency sampling structures for F.I.R. filter, Steps in Filter Design, Design by Pole Zero Placements, FIR filter design by Windowing method, Rectangular, Triangular and Blackman window.
- UNIT-V : Analog filter types, Butter worth, Elliptic filter, Specification and formulae to decide to filter order, Methods to convert analog filter into IIR digital, Mapping of differential, Impulse invariant, Bilinear, Matched Z transformation.
- UNIT-VI : DSP Processors and applications- DSP Microprocessors architectures, fixed point, floating point precision, algorithm design, mathematical, structure and numerical constraints, DSP programming, filtering, data conversion; Real time processing consideration including interrupts

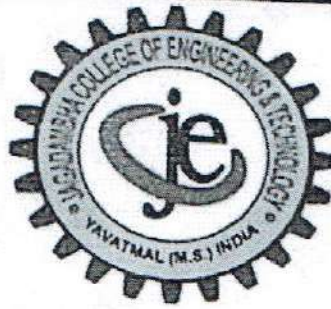
### TEXT BOOKS:

1. Proakis & Monolakis D.G, 'Digital Signal Processing', PHI Publication
2. Oppenham & Scheffer, 'Discrete Time Processing', John Wiley Publication
3. Digital Signal Processing, P Ramesh Babu, SCITECH Publications, Chennai, 4<sup>th</sup> edition, 2010
4. Mitra S.K, 'Digital Signal Processing', TMH Publication



  
Principal  
Jagadamba College of Engineering &  
Amli Road, Kinhi, Vayatal





## CERTIFICATE

This is to certify that the project Report entitled

**“Transformerless Grid Connected PV System”**

Submitted by

**Mr. Sumit P. Kottawar**

**Mr. Shubham L. Lakhadive**

**Mr. Lakhan S. Jadhao**

**Mr. Sagar P. Kubde**

**Ms. Reshma Take**

In a partial fulfillment of the requirements for the award of degree of Bachelor of Engineering in Electrical Engineering of SantGadge Baba Amravati University, Amravati and is bonafide work carried out and completed under my guidance and supervision during the session 2017-2018.

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

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

**Prof. S.S. Mohanapure**  
(Project Guide)

**External Examiner**



**Dr. Hemant M. Baradkar**  
Principal

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




## Abstract

In this Project, the designing of a grid-connected photovoltaic system for the power electronic laboratory of UiT- Campus Narvik has been carried out. The relevant topics and literature regarding the elements in a photovoltaic system and grid connection standards have been studied and reviewed. A system, with the capacity and ratings of solar modules currently available in the laboratory, has been designed in Simulink. The designed system in a multistage system. Boost converter is used to amplify the photovoltaic array voltage.

The inverter used is a three-phase two-level inverter. The control structure for inverter is designed in synchronous reference frame. Phase Locked Loop (PLL) extracts the necessary information of grid voltage phase. An LCL filter is used to interconnect inverter output to the grid. After that the results of the designed simulation are discussed. Hardware specific models are then made for code generation using the Embedded Coder feature of Simulink. In the end, discussion about this thesis, conclusion and recommendations for future work are presented



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



**3KS03 OBJECT ORIENTED PROGRAMMING**

**Course Pre-requisite:** Computer Programming

**Course Objectives:**

1. To explore the principles of Object Oriented Programming (OOP) such as data abstraction, encapsulation, inheritance and polymorphism.
2. To use the object-oriented paradigm in program design.
3. To Provide programming insight using OOP constructs.
4. To lay a foundation for advanced programming

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

1. Apply Object Oriented approach to design software.
2. Implement programs using classes and objects.
3. Specify the forms of inheritance and use them in programs.
4. Analyze polymorphic behaviour of objects.
5. Design and develop GUI programs.
6. Develop Applets for web applications

**Unit I: Introduction to Object Oriented Programming (Hours:7)**

Introduction, Need of OOP, Principles of Object-Oriented Languages, Procedural Language Vs OOP, Application of OOP, Java Virtual Machine, Java features, Program Structures. Java Programming Constructs: Variables, Primitive data types, Identifier, Literals, Operators, Expressions, Precedence Rules and Associativity, Primitive Type Conversion and Casting, Flow of Control.

**Unit II: Classes and Objects (Hours:7)**

Classes, Objects, Creating Objects, Methods, Constructors, Cleaning up Unused Objects, Class Variable and Methods, this keyword, Arrays, Command Line Arguments.

**Unit III: Inheritance, Interfaces and Packages (Hours:6)**

Inheritance: Inheritance vs. Aggregation, Method Overriding, super keyword, final keyword, Abstract class. Interfaces: Defining interfaces, Implementing interfaces, Accessing interface variables, Extending interfaces. Packages: Packages, java.lang package, Enum type.

**Unit IV: Exception handling and Input /Output (Hours:7)**

Exception: Introduction, Exception handling Techniques, User-defined exception, Exception Encapsulation and Enrichment. Input/Output: The java.io.file Class, Reading and Writing data, Randomly Accessing a file, Reading and Writing Files using I/O Package.

**Unit V: Applets (Hours:7)**

Introduction, Applet Class, Applet structure, Applet Life cycle, Common Methods used in displaying the output, paint (), update () and repaint (), More about applet tag, get Document Base() and get Code Base () methods, Applet Context Interface, Audio clip, Graphic Class, Color, Font, Font Metrics.

**Unit VI: Unit Title: Event Handling (Hours:6)**

Introduction, Event delegation Model, java.awt.event Description, Sources of events, Event Listeners, Adapter classes, Inner Classes. Abstract Window Toolkit: Introduction, Components and Containers, Button, Label, Checkbox, Radio Buttons, List Boxes, Choice Boxes, Textfield and Textarea, Container Class, Layouts, Menu, Scrollbar.

**Text Books:**

1. Sachin Malhotra and Saurabh Choudhary: Programming in Java, Oxford University Press 2010.
2. Herbert Schildt: Java Complete References (McGraw Hill)

**Reference Books:**

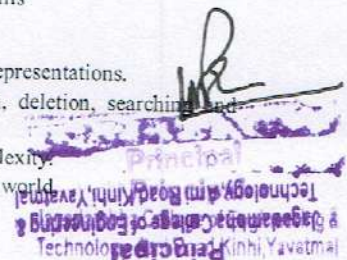
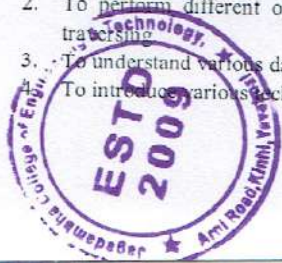
1. H.M.Dietel and P.J.Dietel, "Java How to Program" Pearson Education/PHI, Sixth Edition.
2. E. Balagurusamy: Programming with Java (McGraw Hill)
3. Dr. R. NageswaraRao: Core Java An Integrated Approach (Dreamtech)
4. Khalid Mughal: A Programmer's Guide to Java Certification, 3<sup>rd</sup> Edition (Pearson)
5. Sharnam Shah and Vaishali Shah: Core Java for Beginners, (SPD), 2010.

**3KS04/3KE04 DATA STRUCTURES**

**Course Pre-requisite:** Fundamentals of programming Language & Logic Building Skills

**Course Objectives:**

1. To understand the linear and nonlinear data Structures and its memory representations.
2. To perform different operations on data structures such as insertion, deletion, searching and traversing.
3. To understand various data searching and sorting methods with its complexity.
4. To introduce various techniques for representation of the data in the real world.





- Course Outcomes:** On completion of the course, the students will be able to
1. Apply various linear and nonlinear data structures
  2. Demonstrate operations like insertion, deletion, searching and traversing on various data structures
  3. Examine the usage of various structures in approaching the problem solution.
  4. Choose appropriate data structure for specified problem domain

**Unit I: Introduction to Data Structures (Hours: 7)**

Introduction to Data structures, Data Structure Operations, Algorithmic Notation, Complexity of algorithms. String processing: storing strings, character data type, string operations, word processing, and pattern matching algorithms.

**Unit II: Array & Record Structure (Hours: 7)**

Linear arrays : Memory Representation of arrays, traversing linear arrays, insertion & deletion operations, Bubble sort, Linear search and Binary search algorithms. Multi dimensional arrays, Pointer arrays. Record structures and Matrices.

**Unit III: Linked lists (Hours: 6)**

Linked lists: Memory Representation of Linked List, traversing a linked list, searching a linked list. Memory allocation & garbage collection. Insertion & deletion operations on linked lists. Header linked lists, Two-way linked lists.

**Unit IV: Stack & Queue (Hours: 7)**

**Stacks:** Sequential Memory Representation of Stack, Arithmetic expressions: Polish notation. Quick sort, Recursion, Tower of Hanoi.

**Queues:** Sequential Memory Representation of Queue, DeQueue, Priority queues.

**Unit V: Trees (Hours: 7)**

Introduction to Trees, Binary trees, Memory Representation of Binary Tree, Traversing binary trees, Header nodes, Binary Search Tree, Heap and heap sort, Path length & Huffman's algorithm.

**Unit VI: Graphs & Sorting Algorithms (Hours: 6)**

Introduction to Graphs, Memory representation of graphs, Warshalls' algorithm, operations on Graphs, Breadth First Search, Depth First Search.

**Sorting :** Insertion Sort, Selection Sort, Radix sort, Merge Sort.

**Text Books:**

1. Seymour Lipschutz: Data Structures, Schaum's Outline Series, McGraw-Hill, International Editions.
2. Trembley, Sorenson: An Introduction to Data Structures with Applications, McGraw Hill.

**Reference Books:**

1. Ellis Horowitz, Sartaj Sahn: Fundamentals of Data Structures, CBS Publications.
2. Data Structure Using C, Balagurusamy.
3. Standish: Data Structures in Java, Pearson Education.

**3KS05 ANALOG & DIGITAL ELECTRONICS**

**Course Prerequisite:** Basic Physics.

**Course Objectives:**

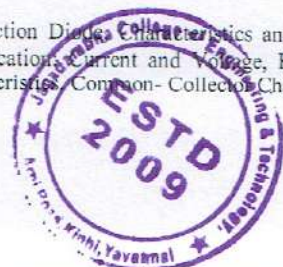
1. To get the introductory knowledge of PN Junction Diode, Bipolar Junction Transistor, Field Effect Transistor.
2. To understand number systems and conversion between different number systems.
3. To get basics knowledge about digital ICs and digital systems.
4. To study the design of combinational circuits and sequential circuits

**Course Outcomes :** At the end of course students will able to

1. Explain basic concepts of semiconductor devices and its application.
2. Compare different Number System and basics of conversion of number systems.
3. Realize different minimization technique to obtain minimized expression.
4. Design Combinational Circuits.
5. Design and Develop Sequential Circuits.

**Unit I: PN Junction Diode and Bipolar Junction Transistor (Hours: 7)**

PN-Junction Diode Characteristics and Parameters, BJT operation, BJT Voltages and Currents, BJT Amplification, Current and Voltage, BJT Switching, Common-Base Characteristics, Common-Emitter Characteristics, Common-Collector Characteristics



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



- Unit II: Field Effect Transistors (Hours: 7)**  
Junction Field Effect Transistors, n-Channel and p-Channel JFET, JFET Characteristics, JFET Parameters, FET Amplifications and Switching, MOSFETs: Enhancement MOSFET, Depletion Enhancement MOSFET, Comparison of p-channel and n-channel FETs, Introduction to CMOS.
- Unit III: Number System (Hours: 6)**  
Binary Number System, Signed and unsigned Number, Octal Number System, Hexadecimal Number System, Conversions between Number Systems, r's and (r-1)'s Complements Representation, Subtraction using 1's and 2's Complements, BCD, Gray Code, Excess 3 Code and Alpha numeric codes.
- Unit IV: Minimization Techniques (Hours: 7)**  
Logic Gates, Boolean Algebra, Logic Operation, Axioms and Laws of Boolean Algebra, Reducing Boolean Expression, Boolean Functions and their representation, SOP Form, POS Form, Karnaugh Map (up to 5 variable), Limitation of Karnaugh Map, Quine- McCluskey Minimization Technique (up to 5 variable).
- Unit V: Combinational Circuits (Hours: 7)**  
Introduction, Design Procedure, Adders, Subtractors, Binary Parallel Adder, 4 Bit Parallel Subtractor, Look-ahead-carry Adder, BCD adder, BCD Subtractor, Multiplexer, De-multiplexer, Decoder, Encoder, Comparator, Parity bit Generator/Checkers, Boolean Expression Implementation using these ICs.
- Unit VI: Sequential Circuits (Hours: 6)**  
Flip-flops: S-R, J-K, Master slave J-K, D-type, T-type, Flip flop Excitation Table, Conversion of Flip Flops, Registers: SISO, SIPO, PISO, PIPO, Universal Shift Register. Counters: Asynchronous and Synchronous counter, Up/Down counter, MOD-N counter, Ring counter, Johnson counter.

**Text Books:**

1. David A. Bell: "Electronic Devices and Circuits", 5e, Oxford University Press.
2. Jain R.P. "Modern Digital Electronics", 3e, TMH.

**Reference Books:**

1. Millman & Halkies: "Electronic Devices & Circuits", 2e, McGraw Hill.
2. Sedra & Smith: "Microelectronics Circuits", 5e, Oxford University Press.
3. Anand Kumar: "Switching Theory and Logic Design", 3e, PHI Learning Private Limited
4. Wakerly, "Digital Design: Principles and Practices", 3 e, Pearson Education, 2004.

**3KS06 OBJECT ORIENTED PROGRAMMING - LAB**

**Course Pre-requisite:** Basic Computer Programming

**Course Objectives:** Design, implement, test, and debug simple programs in an object-oriented programming language.

1. To develop the knowledge of object-oriented paradigm in the Java programming language.
2. To evaluate classical problems using java programming.
3. To develop software development skills using java programming for real world applications.

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

1. Design, implement, test, and debug simple programs in an object-oriented programming language.
2. Interpret the basics of object-oriented design and the concepts of encapsulation, abstraction, inheritance, and polymorphism
3. Build applications in Java by applying concepts like interfaces, packages and exception handling.
4. Make use of Java concepts like API, Applets, AWT.

**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. Introduction to Object Oriented Programming and installation of JDK. Write a program to print a message "Hello World..."
2. Develop a program to explain use of Operators in java.
3. Develop a Program to study and implement Looping Statements belonging to Java.
4. Develop a Program to study and implement Selection Statements belonging to Java.
5. Develop a program to study and implement some Pyramid.
6. Develop a program to demonstrate the concept of Class, Method and Object.
7. Develop a program to study and implement the concept of Method Overloading.
8. Develop a program to study and implement concept of Constructor in Java.
9. Develop a program to study and implement concept of Constructor Overloading in Java.
10. Develop a program to study and implement the Array in Java.



*MNR*  
Principal



11. Develop a Program on various ways to accept data through keyboard( Command Line Argument)
12. Develop a program to study and implement the concept of Inheritance.
13. Develop a program to study and implement the concept of Method Overriding.
14. Develop a program to study and implement the Abstract Class.
15. Develop a program to study and implement the concept of Interface in Java.
16. Develop a program to study and implement Exception Handling Mechanism in Java.
17. Develop a program to study and implement Java I/O.
18. Develop a program to study and implement simple Applet in java.
19. Develop a program on Applet to demonstrate Graphics, Font and Color class.
20. Develop a Program on passing parameters to applets
21. Develop a Program to create GUI application without event handling using AWT controls
22. Develop a Program to create GUI application with event handling using AWT controls
23. Develop a program on Multithreading
24. Develop a Program to create GUI application with event handling using Swing controls
25. Mini Project based on content of the syllabus. (Group of 2-3 students)

### 3KS07 DATA STRUCTURE - LAB

**Course Pre-requisite:** Basics of programming Language & Logic Building Skills

**Course Objectives:**

1. To understand the linear and nonlinear data Structures and its memory representations.
2. To perform different operations on data structures such as insertion, deletion, searching and traversing.
3. To understand various data searching and sorting methods with its complexity.
4. To introduce various techniques for representation of the data in the real world.

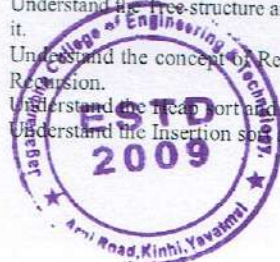
**Course Outcomes :** On completion of the course, the students will be able to

1. Apply various linear and nonlinear data structure.
2. Demonstrate operations like insertion, deletion, searching and traversing on various data structures
3. Examine the usage of various structures in approaching the problem solution.
4. Choose appropriate data structure for specified problem domain

**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. Write a program to find out largest number from the array and also find it's location.
2. Write a program to traverse an array and find the sum and average of data elements from an array.
3. Write a Program to a) insert an element in an array b)delete an element from an array.
4. To study and execute the Linear search method
5. To study and execute the Binary Search method
6. To study and execute the Pattern matching Algorithms( Slow and Fast)
7. To study and execute Bubble sort method.
8. To study and implement various operations on singly linked list
  - (a) Traversing the linked list.
  - (b) Insert a node at the front of the linked list.
  - (c) Delete a last node of the linked list.
  - (d) Searching a Linked list.
9. To study and implement following operations on the doubly linked list.
  - (a) Insert a node at the front of the linked list.
  - (b) Insert a node at the end of the linked list.
  - (c) Delete a last node of the linked list.
  - (d) Delete a node before specified position.
10. To study and implement following operations on the circular linked list.
  - (a) Insert a node at the end of the linked list.
  - (b) Insert a node before specified position.
  - (c) Delete a first node of the linked list.
  - (d) Delete a node after specified position.
11. Understand the stack structure and execute the push, pop operation on it.
12. Understand the Queue structure and execute the insertion, deletion operation on it.
13. Formulate and demonstrate Transforming Infix Expressions to Postfix Expression using Stack.
14. Formulate and demonstrate the Evaluation of Postfix Expression using Stack.
15. To study and execute Quick sort method.
16. Understand the Tree structure and implement the Pre-order, In-order, post-order traversing operations on it.
17. Understand the concept of Recursion and write a program to calculate factorial of a number using Recursion.
18. Understand the Heap sort and implement it on given data.
19. Understand the Insertion sort and implement it on given data.



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



# CERTIFICATE

Certified that this B.E. Seminar Report titled

**"Indoor Sensor Monitoring & Controlling Device Using IOT"**

By


Miss. Gauri R. Kolhe


Miss. Shital N. Dahake


Miss. Simran S. Dembda

Miss. Ritika S. Kotwani

of final year (B.E) during the academic year 2017-2018 is for partial fulfillment for requirement of the award of the degree of Bachelor of Engineer in Computer Engineering under Sant Gadge Baba Amravati University, Amravati.

  
Prof. S. A. Murab  
(Guide)


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

  
Dr. H. M. Baradkar  
(Principal)



Department of Computer Engineering  
Jagadambha College of Engineering & Technology,  
Yavatmal, (M.S), India-445001  
Session 2017-2018



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




## ABSTRACT

Automatic Watering Plant System completely avoids mankind. This watering system ease the burden of getting water to plants when they need it. This project uses arduino board, which consists of ATmega328 microcontroller. It is programmed to sense moisture level of plants at particular instance of time, if the moisture content is less than specified threshold which is predefined according to particular plant's water need then required amount of water is supplied till it reaches threshold. Generally, plants need to be watered twice a day, morning and evening. Thus, the microcontroller is programmed to water plants two times per day. System is designed in such a way that it reports its current state as well as remind the user to add water to the tank.

All this notifications are made through mobile application. In this project we are using three sensor such as soil moisture sensor, temperature & humidity sensor, level sensor. The moisture sensors measure the moisture level (water content) of the different plants. If the moisture level is found to be below the desired level the moisture sensor sends the signal to the Arduino board which triggers the Water Pump2 to turn ON and apply the water to the plant. When the desired moisture level is reached the moisture sensor turns its own and the Water Pump2 is turned OFF. The another main aspect of this project is water level sensor. It senses the water level in the tank and it send the information to the microcontroller. If the water level is low water pump1 will operate and pump water to the tank. We hope that through this prototype we all can enjoy having plants, without being worried about absent or forgetfulness.

Keywords: Automatic Watering System, Arduino-board, Relay, Soil Moisture Sensor, temperature and humidity sensor, water level sensor, ESP8266 Module.



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



# Certificate

Certified that this B.E. Seminar Report titled

**Application for Training and Placement Cell**

By

Miss. Swati V. Thakre


Miss. Gauri M. Mankar

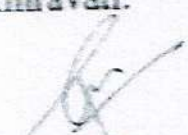
Miss. Rutuja A. Pohankar


Miss. Samiksha S. Pawar

Mr. Gaurav V. Nibrad

of final year (B.E) during the academic year 2017-2018 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. V. Mahalle  
(Project Guide)

  
P. D. Thakare  
(Head of Department)

  
Dr. H. M. Baradkar  
(Principal)  
23/07/18



Department of Computer Engineering  
Jagadambha College of Engineering & Technology,  
Yavatmal, (M.S), India-445001  
Session 2017-2018



  
Dr. Hemant M. Baradkar  
Principal  
Jagadambha College of Engineering &  
Technology, Yavatmal, (M.S), India-445001



## ABSTRACT

Training And Placement Cell is a android based application developed in the windows platform for the training and placement department of the college in order to provide the details of its students in a database for the companies to their process of recruitment provided with a proper login. The Training And Placement Cell contains all the information about the students. The system stores all the personal information of the students, like their personal details, their aggregate marks, their skill set and their technical skills that are required in the CV to be sent to a company. The system is an online application that can be accessed throughout the organization and outside as well with proper login provided. This system can be used as an application for the TPO of the college to manage the student information with regards to placement. This project contains all the details of the students that can be viewed by all the users (read only), but can be modified only by the student with an authorized service. By maintaining student's information, the system helps to have selections to be made easy for a company in its test for the recruitment process. The students can update their own information only. So, our project provides a facility of maintaining the details of the students, and gets the requested list of candidates for the companies who would like to recruit the people based on a given query.

**Keywords:** PHP, Java, Student Database, Admin, Login, Resume, Browser, WAMP/XAMP server.



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



**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. Write python program to store data in list and then try to print them.
2. Write python program to print list of numbers using range and for loop
3. Write python program to store strings in list and then print them.
4. Write python program in which an function is defined and calling that function prints Hello World.
5. Write a python script to print the current date in the following format "Sun May 29 02:26:23 IST 2017"
6. Write a program to create, append, and remove lists in python.
7. Write a program to create, concatenate and print a string and accessing sub-string from a given string.
8. Write a program to demonstrate working with tuples in python.
9. Write a program to demonstrate working with dictionaries in python.
10. Write a python program to find largest of three numbers.
11. Write python program in which an function(with single string parameter ) is defined and calling that function prints the string parameters given to function.
12. Write python program in which an class is define, then create object of that class and call simple print function define in class.
13. Write a Python script that prints prime numbers less than 20.
14. Write a python program to find factorial of a number using Recursion.
15. Write a python program to define a module to find Fibonacci Numbers and import the module to another program.
16. Write a script named copyfile.py. This script should prompt the user for the names of two text files. The contents of the first file should be input and written to the second file.
17. Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.
18. Write a Python class to convert an integer to a roman numeral.
19. Write a Python class to implement pow(x, n)
20. Write a Python class to reverse a string word by word.
21. Accessing and working with databases using Python.
22. Create data frame from .csv files and operations on it.
23. Plotting various graphs using Python.
24. Developing basic GUI using Python.
25. Developing web applications using Django framework or Flask

**Reference Books :**

1. "Core Python Programming", R. NageswaraRao, dreamtech press.
2. "Python Programming A Modular Approach With Graphics, Database, Mobile and WebApplications", SheetalTaneja, Naveen Kumar, Pearson.
3. Python Web Development with Django By Jeff Forcier, Paul Bissex, Wesley J Chun, Addison-Wesley Professional.
4. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2011, Cengage Learning
5. Allen B. Downey , " Think Python: How to Think Like a Computer Scientist", Second Edition, Shroff/O'Reilly Publishers
6. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
7. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, "Data Structures and Algorithms in Python", Wiley
8. Introduction to Computation and Programming using Python, by John Guttag, PHI Publisher, Revised and Expanded version (Referred by MIT)

\*\*\*\*\*

**SEMESTER - IV**

**4KS01 ARTIFICIAL INTELLIGENCE**

**Course Pre-requisite:** Basic concepts of Data Structures, Algorithms, Programming

**Course Objectives:**

1. To present an overview of Artificial Intelligence (AI) principles and approaches.
2. To understand the historical evolution of Artificial Intelligence.
3. To learn various searching techniques and identify to address a particular problem).

**Course Outcomes :**

- On completion of the course, the students will be able to
1. Explain concepts of Artificial Intelligence and different types of intelligent agents and their architecture.
  2. Formulate problems as state space search problem & efficiently solve them.
  3. Summarize various searching techniques, constraint satisfaction problem and example problems - game playing techniques.





4. Apply AI techniques in applications which involve perception, reasoning and learning.
5. Compare the importance of knowledge, types of knowledge, issues related to knowledge acquisition and representation.

**Unit I: Introduction to AI (Hours: 7)**

**Introduction :** What Is AI?, The Foundations of Artificial Intelligence, The History of Artificial Intelligence, The State of the Art, Risks and Benefits of AI,  
**Intelligent Agents:** Agents and Environments, Good Behavior: The Concept of Rationality, The Nature of Environments, The Structure of Agents

**Unit II: Problem Solving Through AI (Hours: 7)**

Introduction, Representation the AI Problems, Production System, Algorithm of Problem Solving, Examples of AI Problems, Nature of AI Problems

**Unit III: Uninformed Search Strategies (Hours: 6)**

Problem-Solving Agents, Example Problems, Search Algorithms, **Uninformed Search Strategies:** Breadth-First Search, Uniform-Cost Search, Depth First Search, Bidirectional Search, Depth Limited Search, Iterative Deepening Depth-First Search

**Unit IV: Informed Search Strategies (Hours: 7)**

Basic Concept of Heuristic Search and Knowledge, Designing of Heuristic Function, **Heuristic Search Strategies:** Generate-And-Test, Best-First Search, Problem Reduction, Hill Climbing, Constraint Satisfaction, Means-Ends-Analysis

**Unit V: Adversarial Search & Games (Hours: 7)**

Game Theory, Optimal Decisions in Games, Mini-Max Search, Alpha Beta Pruning, Additional Refinements, Monte Carlo Tree Search, Stochastic Games, Partially Observable Games, Limitations of Game Search Algorithms

**Unit VI: Introduction to Knowledge (Hours: 6)**

Introduction, Types of Knowledge, Knowledge Representation, Knowledge Storage, Knowledge Acquisition, Knowledge Organization and Management, Basic Concepts of Knowledge Engineering

**Text Books:**

1. Artificial Intelligence: A Modern Approach by Stuart Russell & Peter Norvig (Pearson - 4<sup>th</sup> Ed.)
2. Artificial Intelligence by Ela Kumar (IK International Publishing House Pvt. Ltd.)

**Reference Books:**

1. Artificial Intelligence by Elaine Rich and Kevin Knight (Tata McGraw Hill - 3<sup>rd</sup> Ed.)
2. A First Course in Artificial Intelligence by Deepak Khemani (Tata McGraw Hill - 1<sup>st</sup> Ed.)
3. Artificial Intelligence and Expert Systems by Patterson (PHI)
4. Introduction to Artificial Intelligence by Rajendra Akerkar (PHI Learning Pvt. Ltd.)

**4KS02 DATA COMMUNICATION AND NETWORKING**

**Course Prerequisite:** Computer and Data Communication Requirements

**Course Objectives:**

1. To understand the building blocks of digital communication system.
2. To prepare mathematical background for communication signal analysis.
3. To understand and analyze the signal flow in a digital communication system
4. To analyze error performance of a digital communication system in presence of noise and other interferences.
5. To evaluate the errors using various error detection & correction techniques.
6. To understand network based protocols in data communication and networking.

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

1. Describe data communication Components, Networks, Protocols and various topology based network architecture
2. Design and Test different encoding and modulating techniques to change digital -to- digital conversion, analog-to-digital conversion, digital to analog conversion, analog to analog conversion,
3. Explain the various multiplexing methods and evaluate the different error detection & correction techniques.
4. Illustrate and realize the data link control and data link protocols.
5. Describe and demonstrate the various Local area networks and the IEEE standards.

**Unit I: Introduction to Data Communication (Hours: 7)**

**Introduction:** Data Communication, Components, Networks, Network types: Local Area Network, Wide Area Network, Switching, The Internet, Accessing the Internet, Standards and Administration: Internet Standards, Internet Administration, Network Models: TCP/IP Protocol Suite, The OSI Model, Transmission media: Introduction, Guided media & Unguided media-Wireless. Switching: Introduction, Circuit Switched Networks, Packet Switching.



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



# Certificate

Certified that this is B.E Project Report titled

**"Intelligent LAN Monitoring System"**

By

Miss.Devika S. Gandhi (GL)

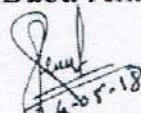
Miss. Komal D. Raut

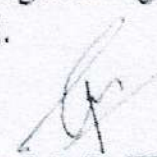
Mr.Abhishek R. Gulhane

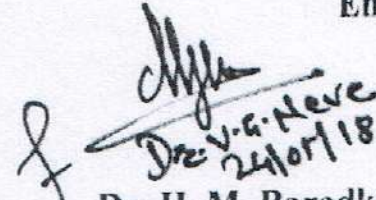
Mr. Mahesh A. Patil

Mr. Pratik B. Gawali

Of Final year (B.E) during the academic year 2017-2018 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. R. M. Raut  
(Project Guide)

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

  
Dr .H. M. Baradkar  
(Principal)

DEPARTMENT OF COMPUTER ENGINEERING  
JAGDAMBHA COLLEGE OF ENGINEERING &  
TECHNOLOGY,  
YAVATMAL,(M.S),INDIA-445401  
Session 2017-2018



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




## ABSTRACT

Now a day's electronic devices and computers are unavoidable parts of everyone life. When computers are connected in a network then, we need a person for monitoring whole network. This may be wired or wireless so we need to monitor for keeping an eye on any misbehavior by client in the network. Computer network security of large organization and small firms like colleges can be easily compromised by using unauthorized software products, pen drives.

So to overcome such problem we are implementing a system named as "Intelligent LAN Monitoring System". In which an android app developed and connected to the main LAN server via WLAN and through this app network controller will be able to monitor the LAN network. Network controller has full access to control the target PC, by providing its IP address. Administrator can use this application to provide the maximum details about the network like files sharing between PC and android device, start and stop the applications installed on the target PC, killed the process, shutdown the target PC, and much more on administrator smart phone, when administrator is away from office or out of station

**Keywords:** Android, Feasibility IP address, server application, Wireless Media, Remote Monitoring & Control, AT command, Password Security, Android based mobile phone



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



**Course Outcomes:**

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

1. Comprehend the knowledge of diode and its applications in rectifier and regulator circuits.
2. Understand basics of BJT, JFET, MOSFET, UJT and their operational parameters.
3. Understand feedback concept, topologies and their applications.
4. Implement and analyze various electronic circuits.

		<b>Subject: Electronic Devices &amp; circuits</b>	L
Unit-1	<b>PN junction diode:</b> Formation of p-n junction, biasing the diode, current equation and V-I characteristics of diode, static and dynamic resistance, Analysis of Half Wave Rectifier (HWR), Full Wave Rectifier (FWR), introduction to filters C, L, LC and CLC filters, working of diode as a Switch, Zener diode and its application as voltage regulator.		06
Unit-2	<b>Waveshaping:</b> Analysis of RC low pass, and high pass filters for Sinusoidal, Step, Pulse, Square signal, analysis of clipping and clamping circuits using diodes.		06
Unit-3	<b>Bipolar Junction Transistors:</b> Operation of PNP and NPN transistor, CB, CE and CC configurations with characteristics and parameters, transistor as a switch, Transistor switching times, dc load line, transistor biasing methods, bias stability, Introduction to voltage divider biased CE amplifiers using h-parameter model.		06
Unit-4	<b>Feedback amplifiers:</b> Feedback concept, effects of negative feedback, basic feedback topologies <b>Sinusoidal oscillators:</b> Barkhausen's criteria, Hartley, Colpitts, RC Phase shift, Wein bridge and crystal oscillators.		06
Unit-5	<b>Multistage Amplifiers:</b> Need of multistage, direct coupled amplifier, RC coupled amplifier, transformer coupled amplifier, emitter follower, Darlington emitter follower, bootstrapping principle (analysis not expected).		06
Unit-6	<b>JFET:</b> Theory, construction and characteristics: parameters ( $\mu$ , $g_m$ & $r_d$ ) <b>MOSFET:</b> Theory, construction and characteristics of enhancement & depletion type MOSFET. <b>UJT:</b> Theory, construction and characteristics; UJT as relaxation oscillator.		06
<b>Total</b>			<b>36</b>

**Text Books:**

1. David Bell: Electronic Devices and Circuits, Oxford University Press, 2010.
2. Milliman and Halkias: Integrated Electronics, Tata McGraw Hill, New Delhi.

**References:**

1. Robert L. Boylestad, "Electronic Devices and Circuit theory", Publ. Pearson Education.
2. Floyd, "Electron Devices" Pearson Asia 5th Edition, 2001.
3. Donald A Neamen, "Electronic Circuit Analysis and Design" Tata McGraw Hill, 3rd Edition, 2003.

**3ETC06 - ELECTRONIC DEVICES AND CIRCUITS - LAB**

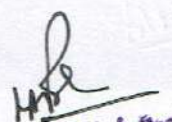
**Course Requisite:**

1. Engineering Physics
2. 3ETC02 Electronic Devices and Circuits

**Course Objectives:**

1. To verify characteristics of various semiconductor devices.
2. To determine and verify various performance parameters of electronic devices and circuits.
3. To provide basic experimental exposure about operation and applications of electronic devices.



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



<b>Unit-3</b>	<b>Non Linear Applications of Op-Amp:</b> Theory & Design of Op-amp IC 741 based comparator, zero-crossing detector, window detectors, Schmitt trigger, astable multivibrator as square and triangular wave generator, monostable multivibrator	06
<b>Unit-4</b>	Design of Voltage regulators using IC 723 and LM 317, Design of instrumentation amplifier, bridge amplifier, temperature Controller/indicator using RTD.	06
<b>Unit-5</b>	Introduction to IC 555, IC 555 based design of Astable, Monostable multivibrator and their applications, A to D converters: Successive approximation & Dual Scope, D to A converters : Weighted Register & R-2R Ladder.	06
<b>Unit-6</b>	PLL: Operation of phase lock loop system, transfer characteristics, lock range and capture range, study of PLL IC LM 565 and its applications as AM detector, FM detector, Design of Butterworth first and second order low pass, high pass, all pass filter, design of notch filter.	06
<b>Total</b>		<b>36</b>

**Text Books:**

1. R.A. Gayakwad, "OP-AMP and Linear Integrated Circuits", Prentice Hall/ Pearson Education Publications.
2. K R Botkar "Integrated Circuits" Khanna Publications.
3. Sergio Franco, "Design with Linear Integrated Circuits & Op-Amps", TMH Publications.

**References:**

1. Gray and Meyer, "Analysis and Design of Analog Integrated Circuits", Wiley Intl. Publication.
2. Paul Horowitz, W. Hill, "The art of Electronics", Cambridge Publications.

**4ETC07 - ANALOG CIRCUITS LAB**

**Course Requisite:**

1. (3ET3) Electronic Devices and Circuits.
2. (4ETC02) Analog Circuits

**Course Objectives:**

1. To verify operation of various wave shaping circuits.
2. To demonstrate linear and non-linear applications of Op-Amp.
3. To analyze multivibrator circuits using BJT and Op-Amp.
4. To understand functions and characteristics of PLL.

**Course Outcomes:**

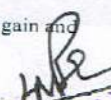
After successfully completing the course, the students will be able to:

1. Implement wave shaping circuits using passive components, diode and BJT and perform their analysis.
2. Demonstrate linear and non-linear applications of Op-Amp.
3. Implement PLL in certain applications.

**List of Experiments :**

Experiment No.	Aim of Experiment
Expt - 1	To verify Op-Amp IC 741 as an inverting and non- inverting amplifier with a specific gain value.
Expt - 2	To demonstrate integrator and differentiator circuit using Op-Amp IC 741.
Expt - 3	To verify RC- phase shift oscillator using Op-Amp IC 741.
Expt - 4	To verify Op-Amp IC 741 as a Schmitt trigger and calculate the hysteresis voltage.
Expt - 5	To verify operation of astable multivibrator using Op-Amp IC 741.
Expt - 6	To plot frequency response of first order Butterworth LPF for a specific pass-band gain and cut-off frequency.



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





## CERTIFICATE

This is to certify that the dissertation entitled "**Android Based Security System With Face Detection**" 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

Miss. Payal D. Rathod

Mr. Swapnil D. Tijare

Miss. Kalyani G. Chaudhari

Miss. Swati D. Rathod

  
Prof. H. V. Deshmukh

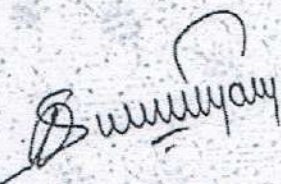
Guide

EXTC Engg. Dept.

  
Prof. S. D. Kale

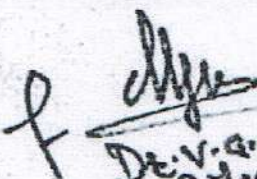
Project Co-ordinator

EXTC Engg. Dept.

  
Dr. A. D. Shelotkar

H.O.D.

EXTC Engg. Dept.

  
Dr. H. M. Baradkar

Principal,

J.C.E.T, Yavatmal





## ABSTRACT

Face recognitions plays a major role in biometrics research which helps to identify the users based on various parameters. In this fast developing technological world face recognition is increasingly used to distinguish the users in mobile. Breach of mobile security is common in this fast paced world which is seriously something to look upon. Cloud gives us significant security as far as data is concerned. Cloud-based storage can assure a certain level of privacy to the end-users. The goal of the paper is to provide mobile users to safeguard their device when some Intruder tries to access the device. This is done by means of image capture which is supplanted by Face-Detection and Recognition. The captured image is then sent to cloud based Storage for retrieval. The user initially registers himself using his Authenticated mail-id. The authorized mail-box receives the image from the cloud database which in turn helps to Track the intruder, thereby providing a certain extent of safety to the end-users.

**KEYWORDS:** Image Capturing, Cloud Transfer, Registration, Authentication, Data Privacy, Face Detection, Face Recognition.



Dr. Hemant M. Baradkar  
Principal

Jagadamba College of Engineering &  
Technology, Aml Road, Kinhi, Yavatm





JAGADAMBHA BAHUDDSHIYA GRAMIN VIKAS SANSTHA'S YAVATMAL


JAGADAMBHA COLLEGE OF ENGINEERING & TECHNOLOGY,

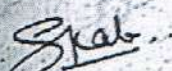
YAVATMAL - 445001

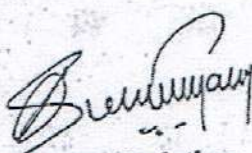
ELECTRONICS & TELECOMMUNICATION ENGINEERING DEPARTMENT


### Certificate


This is to certify that the dissertation entitled "**TRANSMISSION OF SOUND USING LASER**" 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 Bachelors of Engineering in Electronics & Telecommunication.

  
Prof. K. L. Thakare  
Guide  
EXTC Engg.Deptt

  
Prof. S. D. Kale  
Project Co-ordinator  
EXTC Engg.Deptt.

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

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

  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology, Sai Road, Yavati






## ABSTRACT:

Light is already becoming a popular means of communication, thanks to fiber optics, which can guide optical data much like a wire transmits current. It might seem impractical to use lasers without a guiding medium to transmit information. However, in contexts where a physical connection is impossible or unfeasible, and the need for a focused beam arises, it would seem logical to use laser light. We decided to create a simple and inexpensive proof-of-concept to demonstrate the advantages of this seemingly impractical scheme. The unique property of laser is that its light waves travel very long distances with very little divergence. In case of a conventional source of light, the light is emitted in a jumble of separate waves that cancel each other at random and hence can travel very short distances only. It is this coherency that makes all the difference to make the laser light so narrow, so powerful and so easy to focus on a given object. Light with such qualities is not found in nature. The main purpose of this project is to realize a transmission-reception system to transfer sound via Laser without a guiding medium, using Intensity Modulation with little quality loss. "Nearly all inventions are not recognised for their positive side either when they're made. So, for example, scientists didn't go out to design a CD machine: they designed a laser. But we got all sorts of things from a laser which we never remotely imagined, and we're still finding things for a laser to do." -Robert Winston, Professor of Science and Society at Imperial College London. "The atoms become like a moth, seeking out the region of higher laser intensity." -Steven Chu, co-winner of the Nobel Prize in Physics in 1997 for the "development of methods to cool and trap atoms with laser light".

Keyword: Laser, Fiber Optics, Intensity Modulation, Coherency



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



- c) Electric discharge Machining - Types die-sinking, wire cut EDM, Mechanism of material removal, process parameters, advantages and applications. (8 Hrs)

**BOOKS RECOMMENDED :**

**Text Books:**

1. Manufacturing Technology-Vol 1 & 2; R.L.Timings, S.P. Wilkinson; Pearson Publication.
2. Workshop Technology - By Hajra Choudhary Vol II.
3. Manufacturing Technology Vol. II P. N. Rao, McGraw Hill Publication

**References:-**

1. Pandya & Shah, Modern Machining process, Tata McGraw Hill 1998.
2. Workshop Technology, O.P. Khanna, Dhanpatrai & Sons.
3. Workshop Technology - By Raghuwanshi. Vol II.

4ME08

**MANUFACTURING TECHNOLOGY - LAB**

**Practicals:-**

1. Demonstration of operations related to lathe, shaper, slotter, drilling & grinding m/c's.
2. One job on lathe covering taper turning and threading.
3. One job on shaping covering plane and inclined surfaces.

The above jobs should include drilling, grinding, tapping etc. Term work should be submitted in the form of journal.

**N.B. :-** The practical examination shall consist of preparation of practical jobs and assessment by external and internal examiner.

\*\*\*\*\*

4ME04

**BASIC ELECTRICAL DRIVES AND CONTROL**

**Course Learning Objectives :**

1. To study the working of electrical drives and their components
2. To study the basics of DC motors and their characteristics
3. To study the working of AC motors, Induction motors and concept of braking
4. To study the different speed control methods of A.C. and D.C. motors
5. To study and design of transducers and their applications
6. To study the industrial applications of different drives

**Course Outcomes :**

Students will be able to -

1. Understand the working of electrical drives and their components
2. Understand the basics of DC motors and their characteristics
3. Understand the working of AC motors, induction motors and concept of braking
4. Understand the different speed control methods of A.C. and D.C. motors
5. Understand the design of transducers and their applications
6. Understand the industrial applications of different drives

**SECTION-A**

**Unit I :** Concept of general electric drives, classification and comparison of electrical drive system, Cooling and heating of electric motors. Introduction to mechatronics, Theory and principle of Power Transistor, SCR. (8 Hrs)

**Unit II :** Basic characteristics of D.C. motor, Torque equation, Modified speed – Torque characteristics. Starting and braking of Electrical D.C. motors, comparison of mechanical and electrical braking methods. Introduction, Principle, construction and working of Servo motors, stepper motors, Brushless D.C. motors. (8 Hrs)

**Unit III :** Classification of A.C. motors, construction, types, principle of working and characteristics of 3 phase Induction motors, applications. Starting and braking of 3 phase induction motors. Classification of single phase induction motors. construction, principle and working and applications. Principle and working of universal motor. (8 Hours)

**SECTION-B**

**Unit IV :** Conventional methods of speed control of A.C. and D.C. motors. Thyristorized stator voltage control of 3 phase induction motor, (v/f) control method, slip-power recovery scheme. Thyristorized armature voltage control of D.C. motors using phase control & Thyristorized chopper. (8 Hours)



Principal

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





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

CERTIFICATE OF APPROVAL

Certified that the project report entitled "Design And Fabrication Of Mini Race Car" has been successfully completed by MR. ROSHAN B. PIMPALKAR MR. ASHISH R. JIVTODE MR. AJINKYA S. CHATURKAR MR. ABHIJIT R. MISAR MR. ROHIT R. DUBE MR. VRUSHABH Y. DHORE MR. MAKARAND M. DESHPANDE under the guidance of PROF. R. U. HEDAU in recognition to the partial fulfillment for the award of the degree of Bachelor of Engineering in Mechanical Engineering, "Jagadambha College of Engineering And Technology Yavatmal - 445001. (An institution affiliated to Sant Gadge Baba Amravati University, Amravati)

Prof. R. U. Hedau  
(Guide)

27/11/18

Dr. V. L. Bhambere  
(HOD, Mech.Engg. Dept.)

Dr. H. M. Baradkar  
(Principal)  
Dr. Hemant M. Baradkar  
Principal  
Jagadambha College of Engineering &  
Technology, Am Road, Kinhi, Yavatmal

Signature of External Examiner:

Name: G. K. Gattani

Date of Examination:





## Abstract

*A mini race car is running and constantly growing concept all over the world. A mini race car is a small four wheeled vehicle used for racing purpose only and run by I.C. engine. A car racing is accepted as most economic form of racing. It is the bridge between theoretical and practical knowledge. We have designed, fabricated and manufactured the mini race car for racing purpose only. This car is powered by Honda Dream Yuga 110 cc engine. The chassis is made of material of steel tubes of AISI 4130 grade. The main objective of car is to make that car with fiscal rate, light in weight and also to increase the performance of car such as speed and efficiency for getting better results in racing.*

*A mini race car must be driven only on racing track. Kart racing or karting is a variant of open-wheel motorsport with small, open, four-wheeled vehicles called karts, go-karts, or gearbox/shifter karts depending on the design. They are usually raced on scaled-down circuits. Karting is commonly perceived as the stepping stone to the higher ranks of motorsports, for example Ginetta Juniors, FIA Formula 4, FIA Formula 3, FIA Formula 2 and FIA Formula 1, with former F1 champions such as Nico Rosberg, Ayrton Senna, Lewis Hamilton and Michael Schumacher beginning their careers in karting. Karts vary widely in speed and some (known as Superkarts) can reach speeds exceeding 260 kilometres per hour (160 mph), while recreational go-karts intended for the general public may be limited to lower speeds.*

*Keywords: mini race car, design, fabrication, manufacturing, racing.*



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



**UNIT-V: Numerical Analysis :** Solution of algebraic and transcendental equations by Newton-Raphson method & method of false position. Solution of system of linear equations by Gauss-Seidal method, Relaxation method. Solution of first order ordinary differential equations by Picard's, modified Euler's, Runge-Kutta and Taylor's method. (10 Hrs.)

**UNIT-VI: Vector Calculus :-** Scalar and vector point functions, Differentiation of vectors, Gradient of a scalar point function, Directional derivatives, Divergence and curl of a vector point function and their physical meaning, line, surface, volume integrals, irrotational and solenoidal vector fields, Stoke's and Divergence theorem (without proof). (10 Hrs.)

**Books Recommended :-**

**Text Books:**

1. Text book on Applied Engineering Mathematics, Vol. II, J.N. Wartikar and P.N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.
2. Higher Engineering Mathematics, B.S Grewal, Himalaya Publishing House.
3. Applied Mathematics, Vol. III, J.N. Wartikar and P.N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.

**Reference Book :** Advanced Engineering Mathematics, Erwin Kreyzig, John Wiley.

### 3ME02 MANUFACTURING PROCESSES

**Course Learning Objectives :**

1. To study the manufacturing processes in sand casting industries, tooling and equipment
2. To study the metal melting process, melting furnaces and defects in casting
3. To study the various types of casting processes
4. To study the mechanical working of metals and allied processes
5. To study the mechanical joining processes and fastenings
6. To study welding processes and surface treatment processes

**Course Outcomes :**

Students will understand the :

1. basic concept of foundry process and related activities
2. concept of complete sand casting process with advance casting methods
3. fundamentals of welding processes
4. various processes like electroplating, anodizing etc and their importance in industries

#### SECTION- A

**Unit-I :** Introduction to manufacturing processes & classification; Introduction to pattern making Pattern materials, pattern making tools, allowances, Types of patterns, functions of patterns, General properties of moulding sands, Mold hardness. Preparation of sand moulds of different types, Moulding processes, core making, core prints, core boxes. Sand casting Processes - Basic principle and Terminology of sand casting, design of gating and riser system – by numerical approach. (9Hrs)

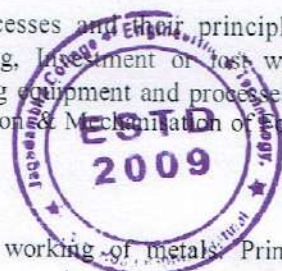
**Unit-II :** Technology of melting and casting - Melting furnaces, crucibles, pit, open hearth, gas fired cupola, cupola operation and electric hearth furnaces, Electric furnaces - Direct Arc, Indirect arc and electric induction furnace.

Defects in castings and its types, Causes and remedies of casting defects. Origin and classification of defects, shaping faults, Inclusion and sand defects, Gas defects, shrinkage defects, contraction defects, dimensional errors. Inspection and testing of castings:- Radiography, ultrasonic, Eddy current testing, fluorescent penetrant test. (7 Hrs)

**Unit III:** Casting processes and their principle of operation and applications permanent mold casting, slush casting, shell molding, Investment or lost wax casting, vacuum process, centrifugal casting, continuous casting, Die casting equipment and processes for Gravity, pressure and vacuum casting methods, cleaning of castings, Modernisation & Mechanization of foundries. (8 Hrs)

#### SECTION-B

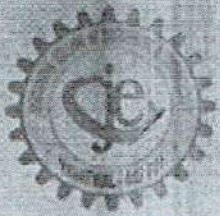
**Unit IV:** Mechanical working of metals, Principle of hot and cold working process and its types, Extrusion, rolling and tube manufacturing, Forming processes of pressure casting and casting. Shaping processes like sand casting, investment casting, shell molding, lost wax casting, etc.



*[Signature]*  
Principal

Jagadamba College of Engineering & Technology, Amravati





(JAGADAMBHA RAHUDESHTIYA GRAMIN VIKAS SANSTHA'S YAVATMAL)  
JAGADAMBHA COLLEGE OF ENGINEERING &  
TECHNOLOGY, YAVATMAL - 445001

## CERTIFICATE OF APPROVAL

Certified that the project report entitled **'Design and Fabrication of Three Wheeler Drive forklift for Industrial warehouses'** has been successfully completed by MR. AKASH B. THAKARE, MR. AKASH N. CHAVHAN, MR. SATISH D. KALAPAD, MR. KIRAN I. PILAWAN, MR. ADITYA P. KADAM, under the guidance of PROF. M. A. PACHKAWADE in recognition to the partial fulfillment for the award of the degree of Bachelor of Engineering in Mechanical Engineering, "Jagadamba College of Engineering And Technology Yavatmal - 445001. (An institution affiliated to Sant Gadge Baba Amravati University, Amravati)

Signature  
Prof. M. A. Pachkawade  
(Guide)

Signature  
Dr. V. L. Bhambere  
(HOD, Mech. Engg. Dept.)



Signature  
Dr. H. M. Baradkar  
(Principal)  
Dr. Hemant M. Baradkar  
Principal  
Jagadamba College of Engineering &  
Technology, Yavatmal

Signature of External Examiner:

Name:

Date of Examination:

  
3/10/2018




## ABSTRACT

Mechanical forklift is an improved and advance technology that helps brought about revolution in the mechanical industries today all heavy engineering company uses it. Widespread use of the forklift truck had revolutionized warehousing practices before the middle of the 20th century. A mixture of material handling systems is in the use, exact from that entirely physical to the ones that are semi-automatic but manually controlled. Forklifts have revolutionized warehouse work. They made it possible for one person to move 100 kg at once. Well-maintained and safely operated forklifts make lifting and transporting cargo infinitely easier. This is the general description of a normal forklift truck. In the warehouses forklifts are the most expensive machines. The study pays special attention to the travelling of these machines. Factories, industries and storage go downs need forklifts and cranes for storage and moving large goods. Also there are a number of goods weighing around 40 – 60 kg that are comparatively lighter but cannot be moved around easily by human labour. To fill this need we here propose a three wheel drive forklift to lift and transport such medium weight goods across factories & industrial warehouses. The three wheel drive is a fast, efficient and low power consumption vehicle that does not require much space to move around. The mini forklift will run on a hub motor and can drive small weight with pickup arrangement across small distances easily. For this we use a mini three wheel vehicle body frame designed with a platform with motorized wheel mounts. It has a perpendicular handle ahead to hold on as well as take turns. To make the project work more realistic, much importance is given for practical orientation, therefore a prototype module is constructed for the demonstration purpose. This module simulates the real working system & based on this technology with slight changes in the structure & motor ratings, the system can be converted for real applications.

**Keywords:** forklift, warehouse, cargo, hub motor, base chassis etc.



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



**Concepts of Digitized / Smart Buildings, Internet of Things (IOT) in buildings and Green Buildings, Industrialized Buildings**

**SECTION -B**

**Unit-III:** Building Bye-laws and Development Control Rules for D Class Municipal Corporations in the Maharashtra State under the provisions of the Maharashtra Regional & Town Planning Act, 1966. Conversion of land to non-agricultural lands, layout for a housing project. Types of public building and their requirements, planning of public building.

Preparing line plans of different public buildings such as schools, commercial market, primary health center, workshop, college building, post-office. Free hand sketching of components of buildings and elevation features of building such as balconies, chajjas, etc., Staircase planning & drawing.

**Unit IV:** Concept of line plan, working and submission drawings of the building. Details to be incorporated in the working drawing. Necessity and use of working and submission drawing. Concept of site plan, block plan and layout plan. Importance and details to be incorporated. Concept of foundation plan, importance and use. Developing working and submission drawings for load bearing and framed structures building from the given line plan (Develop plan, elevation, LHSV, RHSV, back side view, section, foundation plan, site plan and their detail). Plumbing ramp, Electric plan.

**Books Recommended :**

1. Shah, Kale & Patki, Building Planning & Drawing, Tata McGraw-Hill publication
2. Dr. Kumar Swamy & Rao Swamy, Charotar publications
3. CheryR, Auto cad Pocket reference, BPB Publication.

**4CE02 - HYDROLOGY & WATER RESOURCE ENGINEERING**

**Learning Objectives of Subject:**

1. To study the different hydrological parameters.
2. To understand hydrological statistics and design.
3. To characterize and mitigate natural and man-made hazard.
4. To understand the various irrigation systems and its design.

**Course outcomes:**

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

1. Explain the hydrology and hydrological data.
2. To analyze the hydrological methods for runoff.
3. Evaluate the ground water hydrological problems.
4. Explain the need of irrigation systems and its alternatives.

**SECTION - A**

**Unit I:** Introduction - Hydrologic cycle, applications in engineering, sources of data. Precipitation- Forms of precipitation, characteristics of precipitation in India, measurement of precipitation, rain gauge network, mean precipitation over an area, depth-area- duration relationships, maximum intensity/depth-duration-frequency relationship, Probable Maximum Precipitation (PMP).

**Unit II:** Abstractions from precipitation - evaporation process, analytical methods of evaporation estimation, reservoir, evaporation and methods for its reduction, evapotranspiration, measurement of evapotranspiration, interception, depression storage, infiltration, infiltration capacity, measurement of infiltration, modeling infiltration capacity, classification of infiltration capacities, infiltration indices.

**Unit III:** Runoff - runoff volume, methods of estimating runoff volume, flow duration curve, flow-mass curve, hydrograph, factors affecting hydrograph, components of hydrograph, base flow separation, effective rainfall, unit hydrograph. Ground water and well hydrology - forms of subsurface water, saturated formation, aquifer properties,



*Handwritten signature*

Principal  
Jagadamba College of Engineering & Technology, Amravati Road, Khami, Yavatmal



**SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART TWO - 232**

Unit V: Distribution systems - canal systems, alignment of canals, canal losses, estimation of design discharge. Design of channels, Kennedy's and Lacey's theory of regime channels. Canal outlets: non-modular, semi-modular and modular outlets. Lining of canals, types of lining. Water logging problems, causes, effects and remedies.

Unit VI: Dams and spillways – Earthen dams: Classification, design considerations, selection of suitable site. Estimation and control of seepage, slope protection. Gravity dams: forces on gravity dams, causes of failure, stress analysis, elementary and practical profile. Economic height of dam, Spillways: components of spillways, types of gates for spillway.

**Books Recommended:**

1. K Subramanya, Engineering Hydrology, Mc-Graw Hill.
2. K N Muthreja, Applied Hydrology, Tata Mc-Graw Hill.
3. G L Asawa, Irrigation Engineering, Wiley Eastern

**4CE03 SURVEYING**

**Learning Objectives of Subject:**

1. To learn about the term surveying, various instruments and possible error.
2. To learn Linear Measurement methods and way of conduction.
3. To learn about the measurement at elevation and of Directions, contour development process.
4. To understand and learn performing Plane table surveying.

**Course Outcomes:**

At the end of the course the student will be able to:

1. Define principles of Surveying, Remote Sensing and Geomatics.
2. Describe different instruments, tools, applications and techniques to determine the positions on the surface of the earth, change detection.
3. To perform Linear measurement methods of surveying.
4. Differentiate the techniques for setting out alignments, curves, other layouts, modern survey systems etc.
5. To perform survey at elevation and conduct Plane Table survey.

**SECTION-A**

**Unit I: INTRODUCTION: Geo-informatics**- definition, disciplines covered, importance. Field Surveying- definition & objectives; concept of Geoids and reference spheroids, coordinate systems, plane and geodetic surveys. Methods of location of a point- classification of surveys; principles of surveying Errors in measurements- sources, types of errors and their treatment. Random error distribution, accuracy, precision and uncertainty. Surveying instruments- temporary and permanent adjustment concept, principle of reversal. Maps- types, importance, scales/CI, conventional symbols, and generalization; topographic maps projection systems, sheet numbering systems, map layout.

**Unit II: LINEAR MEASUREMENTS:** Direct and indirect methods; Chain and tape measurements- corrections to tape measurements; Optical methods- tachometers, sub tense bar; Electronic methods- EDMs, total stations.

**Unit III: MEASUREMENT OF ELEVATIONS :** Various terms; Methods of height determination; Spirit leveling- different types of levels and staves; booking and reduction of data, classification and permissible closing error; profile leveling and cross sectioning; curvature & refraction and collimation errors; reciprocal leveling. Contours- characteristics, uses and methods of contouring.

**SECTION – B**

**Unit IV: MEASUREMENT OF DIRECTIONS:** Bearings and angles; Compass surveying- magnetic bearings, declination, local attraction errors and adjustments.

**Unit V: TRAVERSING:** Purpose and classification of each; Compass and theodolite traverses, theodolites- different types, uses, methods of observation and booking of data, balancing of traverses, computation of coordinates, omitted measurements Gale's traverse table.

**Unit VI: PLANE TABLING:** Merits and demerits, accessories; orientation and resection; methods of plane tabling; three point problem and solutions; errors in plane tabling least square principle. Engineering & Technology, Am Road, Khami, Yavatmal



Principal  
H.M.S.



# CERTIFICATE

*This is to certify that the seminar Entitled*

**"AUTOMIZATION OF IRRIGATED LAND FOR INDIAN SOCIETY ON REAL TIME BASIS"**

*Has been successfully completed by*

MISS. PAYAL S. NEET

MISS. PAYAL D. WABHITKAR

MISS. AKANKSHA G. RAUT

MISS. ANJALI R. NANDURKAR

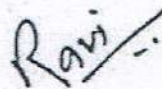
*In partial fulfillment for the degree of*

Bachelor of Engineering  
(Electronics & Telecommunication Engineering)

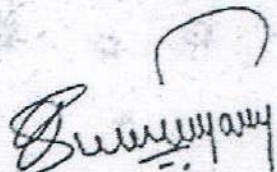
Awarded by

Sant Gadge Baba Amravati University, Amravati, (M. S)  
During academic year 2017-2018 under my guidance

Guided by




Prof. R. S. Shriwas  
Assistant Prof. (EXTC Department)  
Jagadhambha college of Engineering and Technology  
Yavatmal



Prof. A. D. Shelotkar  
HOD

Electronics & Telecommunication  
Engineering Department  
Jagadhambha college of Engineering  
and Technology, Yavatmal



Dr. H. M. Baradkar  
Principal

Jagadhambha college of Engineering  
and Technology, Yavatmal




Dr. H. M. Baradkar  
Principal  
Jagadhambha College of Engineering &  
Technology, Yavatmal



## ABSTRACT

The purpose is use to develop and enhance the productivity of farm. The microcontroller is used in combination with sensors to measure ecological factors namely the temperature, humidity and soil moisture. Farmers can get all information on mobile application through internet. This is useful for both open farm and poly house. In poly house when temperature goes high, crops get covered automatically by green net. To avoid motor damage, dry run concept in addition with spraying fertilizers via pipes through motor. This helps to take agricultural activities at very high and ease level with more advantages for more effective and productive gain.



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



# CERTIFICATE

*This is to certify that the Project Entitled*

**“EXPERIMENTAL STUDY ON SELF CURING CONCRETE  
USING PEG-400”**

*Has been successfully completed by*

**ABDUL SIDDIQUE SHAIKH**

**ADITI S. YEWALE**

**SHUBHAM S. MOHITE**

**KISHORI S. SAGANE**

**POONAM A. KHUNKAR**

**SHUBHAM R. GANNOJWAR**

**MAYURI I. DAHARE**

**ZAINAB A. BHARMAL**

**MAYUR D. SINGALWAR**

*In partial fulfillment for the degree of*

**Bachelor of Engineering in  
Civil Engineering**

**Awarded by**

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

**During academic year 2017-2018 under my guidance**

**Guided by**



**Prof. Sagar R. Raut  
Assistant Professor  
(Civil Engineering Department)  
Jagadambha College of Engineering & Technology  
Yavatmal.**



**Prof. A.R. Rode  
Head of Civil Department  
Jagadambha College of Engineering  
& Technology, Yavatmal.**



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

**Dr. Hemant M. Baradkar  
Principal**

**Jagadambha College of Engineering &  
Technology, AT: Road, Yavatmal**





## ABSTRACT

We know that water is becoming a scarce material, there is an urgent need to do research work to saving of water in making concrete and in constructions. Most of the areas have a scarcity of water for construction work. As curing of concrete is maintaining satisfactory moisture content in concrete during its early stages in order to develop the desired strength and other properties; for this large amount of water is needed. Curing of concrete plays a vital role in developing the construction and hence improves its durability and performance. The main objective of this experimental investigation is to find differences between Control mix, with curing, without curing (0% PEG) and with addition of PEG-400 (0%,0.5%,1%,1.5%). The specimens are cured without water for 3, 7 and 28 days and later different strength characteristics such as compressive strength are studied. The main objective of this study is to observe the mechanical properties of concrete with and without curing and using self curing agent like PEG-400.

**Keywords – Self-curing concrete, self-curing agent, PEG-400, workability, compressive strength.**



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



A  
Report on  
Field Project

“Design And Analysis of Water Distribution System For Village  
Kinhi”



**JAGADAMBHA**  
COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Arni Road, Yavatmal - 445001 (M.S.)

Ph. 07232-244226, Fax : 07232-244226, Cell : 98 5005 3333

E-mail : principal.jcoet@gmail.com, principal@jcoet.org

Website : www.jcoet.org



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



## “Design And Analysis of Water Distribution System For Village Kinhi”


By  
Civil Engineering Department

1. Title of Activity	“Design And Analysis of Water Distribution System For Village Kinhi Yavatmal”
2. Date of Activity	29/03/2017
3. Objective	To develop and integrated portable water system technology for design and analysis of water distribution system.
4. Venue	Kinhi Tq, Yavatmal
5. No. of Beneficiary	130 Students work on this project(Final Year)
6. Guided By	Prof. S.S.Kendhe Prof. V.R. Bankar

### INTRODUCTION

The present system of supply adopted in KINHI municipality is an intermittent supply and the network adopted is a dead end system. This system of supply of water in KINHI municipality may not be reliable to the upcoming years. as the present water distribution system do not fulfill the requirement of the area. Hence the research is all about the analysis of the new network and concludes about the reliability on the network for the future. The analysis is carried out based on various public demands, quantities of inflows and out flows of the over-head reservoirs. This analysis provides the information about various demands, losses, and uses of the public. The design and analysis of network of supply will make the municipality be aware of the new demands, rate of increase in the demands. The design is made keeping in view of the population growth rate, and the developing town. We use EPANET 2.0. Software to detect the flow of water in each pipe, the pressure at each node, the height of water in each tank. To examined the study of water demand analysis of public water supply in urban area using EPANET 2.0. Software with the aim of providing effective planning, development and operation of water distribution network which is one of an essential component of any water distribution network.



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




Water is the most precious gift of nature. It is the most crucial for sustaining life and is required in almost all the activities of mankind i.e., domestic and industrial use, irrigation to meet the growing food and fiber needs, power generation, navigation, recreation etc. and also required for animal consumption. The common source of water mainly comprises of Rain water, Surface water, Ground water and Water obtain from reclamation. With the increase in population, demand of water supply on the civic amenities including water supply for domestic purposes, irrigation, industry etc. has increased. Therefore, identification of sources of water supply, their conservation and optimal utilization is of utmost importance. Water distribution system, hydraulic infrastructure consisting of elements such as pipes, tanks, reservoirs, pumps and valves etc. is crucial to provide water to the consumers. Distribution mains are the pipelines that make up the distribution system. Water served human beings and living organisms in past centuries by rivers valleys and streams.

The most important consideration in designing and operating a water distribution system is to satisfy consumer demands under a range of quantity and quality considerations during the entire lifetime for the expected loading conditions. Also, a water distribution system must be able to accommodate abnormal conditions such as breaks in pipes, mechanical failure of pipes, valves, and control systems, malfunction of storage facilities and inaccurate demand projections. The possibility of occurrence of each of these deficiencies should be examined to determine the overall performance and thereby the reliability of the system. In general, reliability is defined as the probability that the system performs successfully within specified limits for a given period of time in a specified environment. As it is defined above, reliability is the ability of a system to provide adequate level of service to the consumers, under both normal and abnormal conditions. However, there is still not a convenient evaluation for the reliability of water distribution systems.

The primary task for water utilities is to deliver water of the required quantity to individual customers under sufficient pressure through a distribution network. The distribution of drinking water in distribution networks is technical challenge both in quantitative and qualitative terms. The water supply in most Indian cities is only available for a few hours per day, pressure is irregular, and the water is of questionable quality. Intermittent water supply, insufficient pressure and unpredictable service impose both financial and health costs on Indian households.



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



Water supply networks are part of the master planning of communities, and municipalities. Their planning and design requires the expertise of civil engineers, who must consider many factors, such as location, current demand, future growth, leakage, pressure, pipe size, pressure loss, firefighting flows etc. Water supply systems get water from a variety of locations, including groundwater, surface water (lakes and rivers). Water then either flows by gravity or is pumped to reservoirs, which can be elevated such as water towers or on the ground.

#### OBJECTIVES:-

It is important to look at operational objectives first, and use these to establish the objectives for the project phase; otherwise there is risk that the water supply system will operate inefficiently, even if the project phase was completed successfully. So, for efficient working of system following objectives should kept in mind:

- To supply water equitably to the consumers with sufficient pressure so as to discharge the water at desired location within the premises.
- To develop and integrated portable water system technology for design and analysis of water distribution system of kinhi village

#### NECESSITY

Human life, as with all animal and plant life on the planet, is dependent upon water. Not only do we need water to grow our food, generate our power and run our industries, but we need it as basic part of our daily lives - our bodies need to consume water every day to continue functioning. "Basic needs of about 70litres per person per day". It includes the need for water to maintain a basic standard of personal and domestic hygiene sufficient to maintain health. The effects of inadequate water supply causes disease, time and energy expended in daily collection, high unit costs, etc. provision of basic daily water needs is yet to be regarded by many countries as a human right.

#### CONCLUSION

The main focused of this project is to design and analyses the water distribution network so at the end of analysis it is observed that the entire network has uniform flow and velocity and every node receives enough pressure without any deficiency.



A handwritten signature in blue ink, appearing to read "HMB" with a flourish.

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



## SNAPSHOTS



Fig.1: Students Taking Reading



Fig.2: Faculty Guiding to Students



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





Fig.3: Students Taking Reading



Fig.4: Students observing Control Pannel



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





**YOGIRAJ CONTROLS**  
 Gajanan Nagar,  
 Arvi Road Plot No. 7  
 Wardha 442001  
 E-mail: -pankaj.wargane@gmail.com  
 ContactNo:- +91-9975762175

PO No: YC/CP0/004

Date: 22/06/2018

**CERTIFICATE**

This is to certify that Vaishnavi R. Deshmukh Student  
 of J.C.O.E.T Branch  
EXTC successfully completed one Day industrial  
 training in our organization, on 21<sup>st</sup> of June 2018.

We found her/him active and competent in executing all assigned task. She/he is hard-working, and a devoted and motivated Trainee whose dedication in taking initiative and contribution for the realization of organizational goals and objectives has proven helpful in the advancement of our establishment repeatedly.

During her training she/he was rated as follows –

Attributes	Excellent	Good	Average
Punctuality		✓	
Conduct		✓✓	
Intitative		✓✓	

We wish her/him good luck.

Dr. Hemant M. Sardesai  
 Principal  
 Jagadamba College of Engineering &  
 Technology, Arvi Road, Kinhi, Yavatmal



Signature:

Name : Mr. Pankaj Wargane  
 Director Yogiraj Controls Wardha





Maharashtra State Power Generation Co Ltd  
Thermal Power Station, Parli - Vaijanath  
Parli-Vaijanath, Pin 431520, Dist Beed (MS)  
Phone: 02446-222357, 58, 59, Fax: 02446-222492  
email: [cegenparli@mahagenco.in](mailto:cegenparli@mahagenco.in)

Ref: CE/ GEN/ PRL/In Plant Trg/ 04674

Date: 20 JUL 2017

## CERTIFICATE

This is to certify that **Mr. Revenwar Onkar Manish,**  
**Electrical Engineering (Second Year)** student of **Jagdambha**  
**College of Engineering & Tech, Yavatmal.** Has successfully  
undergone the **In Plant Training** at **BM -250 MW Section** in  
Thermal Power Station, Maharashtra State Power Generation  
Company Ltd, Parli during the period **19.06.2017 to 25.06.2017.**

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



Dy. Chief Engineer (Admin.)

Mahagenco, T.P.S., Parli-V





**MAHARASHTRA STATE POWER GENERATION CO. LTD.**  
KORADI TRAINING CENTRE, KORADI, NAGPUR. 441111  
( INTEGRATED MANAGEMENT SYSTEM CERTIFIED UNIT )

# Certificate

## VACATION TRAINING

Batch VT- 88

This is to certify that,

Mr. / Miss Shubham P. Duddalwar

Student from Jagadamba CoET Yavatmal  
of VII sem. Mechanical branch

Has successfully completed Vacation Training Conducted at

**Koradi Training Centre, Koradi**

From 19.12.16 to 7.1.17 ( 20 days)

Date : 7.1.2017



**COURSE DIRECTOR** ||  
KTC, MAHAGENCO, KORADI

**S.E. (TRG.)** ||  
KTC, MAHAGENCO, KORADI

**CHIEF ENGINEER (TRG.)** ||  
KTC, MAHAGENCO, KORADI

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





Jagadambha Bahuuddeshiya Gramin Vikas Sanstha's

# JAGADAMBHA COLLEGE OF ENGINEERING & TECHNOLOGY, YAVATMAL

Reg. No. F - 7596 (Ytl.)

JCEET 116-17/974

Date: 18/04/2017

To,  
The HR,  
3DOT Technologies,  
Pune

Subject: Request Letter for Industrial Training.

Respected Sir,

The Students of **Third year Computer Science Engineering** of Jagadambha College of Engineering & Technology, Yavatmal are interested to undertake an Industrial Training at your prestigious organization from **10<sup>th</sup> June to 19<sup>th</sup> June 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 candidate.


1. Mrunali P. Kawalkar
2. Bhagyashri S. Thete
3. Namrata D. Rekwar
4. Ashwini R. Ghoderao

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

Thanking you!



  
Principal,  
Jagadambha College of Engineering & Technology,  
Yavatmal

  
18-4-17

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





# CERTIFICATE

3DOT Technologies Awards this Certificate to

**Mrunali Kawalkar**

and verifies that the above has successfully completed :  
One-Month Internship in Web Development.

Issued on: 04 July 2017



**3DOT Technologies**



*HMB*  
Hemant M. Baradkar  
Principal  
Jyotiba Phule Mahavidyalaya College of Engineering & Technology, Arni Road, Kinhi, Yavatmal

Issuing Authority