



Shri Gajanan Maharaj Shikshan Prasarak Mandal's,
Sharadchandra Pawar College of Engineering
Dumbarwadi (Otur), Tal: Junnar, Dist: Pune -412409

1.3 Curriculum Enrichment

Cr. No	Key Aspect	Assesment Indicator	Details	Evidence
1.3.2	Curriculum Enrichment	Number of courses that include experiential learning through project work/field work/internship during the year	List of Programmes	List of Programmes which include experiential learning
			Programme / Curriculum/ Syllabus of the courses	Course Structure and Syllabus
				Mini Project List
				Major Project List



Shri Gajanan Maharaj Shikshan Prasarak Mandal's,
Sharadchandra Pawar College of Engineering
Dumbarwadi (Otur), Tal: Junnar, Dist: Pune -412409

Department of Electronics & Telecommunication Engineering

➤ **Project Summary list**

Sr. No.	Year	Title of Project	Name of Project Partners	Name of the Guide
1	20-21	PC based automatic testing & monitoring system for appliances	Supriya Padwal	Prof. N. B. Bankhele
			Vishal Shrikande	
2	20-21	Smart Shopping Cart For Automatic	Akash R.Aher	Prof. R. S. Bansode
			Vishnu Sambhaji Bhogade	
3	20-21	Walkie Talkie using nRF24L01 RF Module	Umesh Bhagwan Mandavkar	Prof. M. G. Chinchole
			Akash Kale	
			Abhijit Sunil Dongare	
4	20-21	Home automation system	Bugde Prajakta	Prof. M. G. Chinchole
			Borude Snehal	
			Smita Kakade	
5	20-21	IOT based Heart attack setection and pulse oxymeter	Bhagade pratik	Prof. N. B. Bankhele
			Somesh Chavan	
6	20-21	Railway anticollision system using arduino board	Satish Shrirang Mane	Prof. R. S. Bansode
			Ganesh Rajaram Jadhav	
			Hingne pawan popat	



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Department of Computer Engineering

➤ **Project Summary list**

Sr. No.	Year	Title of Project	Name of Project Partners	Name of the Guide
1	20-21	Encrypted Data Rettrival from Cloud Computing By Attributes	Kale Vaibhav	Prof. Dere K.D.
			Kapadi Akshay	
			Ratnaparkhi Deepak	
			vare Deepak	
2	20-21	Novel Approach For Data hiding Under QR code Using Visual Secret Shairing	Matele Ashwini Chandrakant	Prof. Khatal S.S.
			Nalawade Dipshika Mangesh	
			Phapale Kajal	
			Kalgutkar Vinay	
3	20-21	Automated Detection of Covid-19 Cases Using Deep Neural Networks	Padekar Nilam	Prof. Khatal S.S.
			Vadawale Arti	
			Gaikwad Shekhar Prakash	
			Shinde Yogita	
4	20-21	Face Emotion Based Music Player Using Face Identification	Shaikh Chand kalim	Prof.Gholap P.S.
			Bankhele Rushikesh Vijay	
			Parekh Megha	
			Lokhande Pragati Ranganath	
5	20-21	Enabling Authorized Encrypted Search For Multi-Authority Industrial Application	Borude Sagar	Prof. Khatal S.S.
			Kedar Arvind	
			Yeole Rahul	
6	20-21	Cloud Intrusion Detection Method Based Onstacked Contractive Auto EncoderAnd Support Vector Machine	Bankar Arti Sunil	Prof. Khatal S.S.
			Mult Sangeeta Baban	
			Chikane Mohini	
			Randhe Priti Bhausaheb	



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Department of Mechanical Engineering

➤ **Project Summary list**

Sr. No.	Year	Title of Project	Name of Project Partners	Name of the Guide
1	20-21	Performance & Emission Analysis By Using Biodiesel And Its Blends On IC Engine	Landge Shrikant Subhash	Prof. Jadhav S Z
			Alawane Shiwani	
			Sable Gitesh Bhaskar	
2	20-21	Experimental And Cfd Analysis Of Helical Tube In Tube Heat Exchanger	Lande Bhausaheb Kashinath	Prof. Dumbre S R
			Suraj Rajendra Jadhav	
3	20-21	Scrap Reduction By Modification In Liquid Dosing System	Pathan Shahbaj Salim	Prof. Gorde N B
			Kurhe Shubham Sanjay	
			Inamdar Jumir Iqbal	
4	20-21	Development Of Low Cost Lpg Cooling System	Bhor Snehal Ganpat	Prof. Gayakwad S R
			Patil Ketu Rajendrabhai	
			Gaikwad Rohit Jagannath	
5	20-21	Design And Manufacturing Of Hydraulic Sheet Metal Forming	Ansari Fazle Karim Kafil	Prof. Jadhav S Z
			Kale Vikas Sitaram	
			Pawale Vijay Dnyaneshwar	
6	20-21	Experimental And Cfd Analysis Of Serpentine Tube.	Khote Nitin Shriram	Prof. Dumbre S R
			Annasaheb Takbhate	
			Vicky Thorat	
7	20-21	Experimental Analysis And Validation Of Staggered Dropped And Circular Pin Fins In 1d And 2d Forced Convection	Chaudhari Viraj Gajanan	Prof. Gorde N B
			Raut Bhavik Bharat	
			Shahu Deepakkumar Hadu	
8	20-21	Vortex Bladeless Wind Mill	Baviskar Sandip Ashok	Prof. Gayakwad S R
			Kavchat Pratik Rajendra	
			Amol Jorvekar	



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Department of Electronics & Telecommunication Engineering

➤ List of Students Undertaken Mini Project

Group No.	Name of the Student	Project title	Guide Name	Co-Guide Name
1	Gunjal Pratiksha Rajendra	Automatic Water Sprinkler Using Arduino	Prof. Bankhele Neeta Baban	Prof. Jagtap Ajay Purushottam
	Kolekar Chhaya Vitthal			
	Khilari Suraj Santosh			
2	Patil Triveni Ramesh	Contact Less Equipment Control	Prof. Bansode Rahul Sitaram	Prof. Nalawade Monika Sudam
	Patil Nutan Vasant			
	Dethe Priyanka Bhaskar			
3	Gharge Ajay Adhikrao	Solar Power Based Mobile Charge	Prof. Bankhele Neeta Baban	Prof. Nalawade Monika Sudam
	Patil Tushar Ramesh			
4	Bhandare Pankaj Vilas	Stepper motor controller	Prof. Chinchole Mahesh Gokul	Prof. Nalawade Monika Sudam
	Iraqi Aafreen Mohammed Muzaffar Aalam			
	Bhad Mahesh Dattu			
5	Gaud Durgesh Brijlal	Digital Power Supply	Prof. Chinchole Mahesh Gokul	Prof. Jagtap Ajay Purushottam
	Dhepe Shrikant Nathuram			
	Chaudhary Usmanraza Mohd Shabbir			
6	Jadhav Ankita Sanjay	Automatic Hand Sanitizer Dispenser	Prof. Bankhele Neeta Baban	Prof. Jagtap Ajay Purushottam
	Zoman Swati Suresh			
	Vilas Powalya Wagh			
7	Kumkar Nilesh Dnyaneshwar	Heart Bit/Rate Monitoring system	Prof. Bansode Rahul Sitaram	Prof. Jagtap Ajay Purushottam
	Sayyad Shahid Jawed			
8	Ghevade Sumit Jaysing	Smart Security Camera	Prof. Chinchole Mahesh Gokul	Prof. Nalawade Monika Sudam
	Pandey Shubham Markandey			
9	Sawant Priyanka Prashant	Soil moisture-based controller	Prof. Chinchole Mahesh Gokul	Prof. Nalawade Monika Sudam
	Gaikwad Prachi Parshuram			
	More Deepak Anil			
10	Kale Kiran Pandurang	Ultrasonic Range Finder Using Arduino	Prof. Bansode Rahul Sitaram	Prof. Jagtap Ajay Purushottam
	Lohakane Umesh Nandkishor			
	Shinde Mahesh Shukleshwar			



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Department of Computer Engineering

➤ List of Students Undertaken Mini Project (BE Computer)

Sr No.	Student Name
1	Kale Vaibhav
2	Kapadi Akshay
3	Ratnaparkhi Deepak
4	vare Deepak
5	Matele Ashwini Chandrakant
6	Nalawade Dipshika Mangesh
7	Phapale Kajal
8	Kalgutkar Vinay
9	Padekar Nilam
10	Vadawale Arti
11	Gaikwad Shekhar Prakash
12	Shinde Yogita
13	Shaikh Chand kalim
14	Bankhele Rushikesh Vijay
15	Parekh Megha
16	Lokhande Pragati Ranganath
17	Borude Sagar
18	Kedar Arvind
19	Yeole Rahul
20	Bankar Arti Sunil
21	Mult Sangeeta Baban
22	Chikane Mohini
23	Randhe Priti Bhausheb



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Department of Computer Engineering

➤ List of Students Undertaken Mini Project (TE Computer)

Roll No.	Name Of Student
1	Aher Rutuja Kisan
2	AMBRE HRUSHIKESH BALASAHEB
3	AWATE DIPALI KAILAS
4	BARVE OMKR ARJUN
5	BELHAWARE AKSHAY ANIL
6	BODAKE SAPANA NATHU
7	CHOUDHARI ABHIJIT SUNI
8	DATIR KOMAL MACCHINDRA
9	DESHMUKH SUMIT BALASAHEB
10	DOKE ONKAR BHASKAR
11	DOKE SANKET SANTOSH
12	GAGARE SONALI BALASAHEB
13	HANDE BHAGYASHREE MANIK
14	JADHAV NIKITA BALU
15	JADHAV NIKITA EKANATH
16	JADHAV PANKAJ BALASAHEB
17	KAJAL SURESH SHETE
18	LOHOTE PRATHAMESH YASHWANT
19	MADHE SUREKHA HARI
20	MAHALE AMOL VASANT
21	MANDE POOJA ARUN
22	MAYEKAR HRITIK PRASAD
23	NALAWADE SANCHIT SATISH
24	NAVALE ADESH LAHANU
25	NIKAM TUSHAR PRAKASH
26	PAREKH MEGHA ANILKUMAR
27	PATIL BHIMASHANKAR RAJKUMAR
28	PAWAR MAHESH DASHRATH
29	SAURABH
30	SHAIKH FIZA HAMID
31	SHINDE ASHWINI SANJAY
32	SHINDE DIVYA SHANTARAM
33	SHINGOTE NIKITA BABAN

1.3.2 Number of courses that include experiential learning through project work/field work/internship during the year

Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Year of offering	Name of the student studied course on experiential learning through project work/field work/internship	Link to the relevant document
Electronics & Telecommunication Engineering	632237210	Project Stage I & Project Stage II	404188 & 404195	2020	Supriya Padwal	
					Vishal Shrikande	
					Akash R.Aher	
					Vishnu Sambhaji Bhogade	
					Umesh Bhagwan Mandavkar	
					Akash Kale	
					Abhijit Sunil Dongare	
					Bugde Prajakta	
					Borude Snehal	
					Smita Kakade	
					Bhagade pratik	
					Somesh Chavan	
					Satish Shrirang Mane	
					Ganesh Rajaram Jadhav	
					Hingne pawan popat	
					Rajshri Surykant Khokrale	
					Gunjal Pratiksha Rajendra	
					Kolekar Chhaya Vitthal	
					Khilari Suraj Santosh	
					Patil Triveni Ramesh	
					Patil Nutan Vasant	
					Deche Priyanka Bhaskar	
					Gharge Ajay Adhikrao	
					Patil Tushar Ramesh	
					Bhandare Pankaj Vilas	
					Iraqi Aafreen Mohammed Muzaffar Aalam	

Electronics & Telecommunication Engineering	632237210	Employability Skills and Mini Project	304196	2020	Bhad Mahesh Dattu			
					Gaud Durgesh Brijlal			
					Dhepe Shrikant Nathuram			
					Chaudhary Usmanraza Mohd Shabbir			
					Jadhav Ankita Sanjay			
					Zoman Swati Suresh			
					Vilas Powalya Wagh			
					Kumkar Nilesh Dnyaneshwar			
					Sayyad Shahid Jawed			
					Ghevade Sumit Jaysing			
					Pandey Shubham Markandey			
					Sawant Priyanka Prashant			
					Gaikwad Prachi Parshuram			
					More Deepak Anil			
					Kale Kiran Pandurang			
					Lohakane Umesh Nandkishor			
Shinde Mahesh Shukleshwar								
Computer Engineering	632224510	Project Stage I Project Stage II Miniproject(sem I) Miniproject (Sem II)	410248 410246	410256 410247	2020	Bankar Arti Sunil		
						Bankhele Rushikesh Vijay		
						Kalgutkar Vinay Vijay		
						Lokhande Pragati Ranganath		
						Matele Ashwini Chandrakant		
						Lokhande Pragati Ranganath		
						Mule Sangita Baban		
						Nalawade Dipshika Mangesh		
						Randhe Priti Bhausaheb		
						Shaikh Chand Kalim		
						Chikane Mohini		
						Borude Sagar		
						Vadawale Arti		
						Kedar Arvind		
						Kapadi Akashy		
						Ratnaparkhi Deepak		
						Gaikwad Shekhar Prakash		
						Vare Deepak		
						Phapale Kajal		
Parekh Megha								
Yeole Rahul								
Shinde Yogita								

					Padekar Nilam	
					kale Vaibhav	
Computer Engineering	632224510	Mini Project	310247 & 310256 & 310246	2020	Aher Rutuja Kisan	
					Ambre Hrushikesh Balasaheb	
					Awate Dipali Kailas	
					Barve Omkr Arjun	
					Belhaware Akshay Anil	
					Bodake Sapana Nathu	
					Choudhari Abhijit Suni	
					Datir Komal Macchindra	
					Deshmukh Sumit Balasaheb	
					Doke Onkar Bhaskar	
					Doke Sanket Santosh	
					Gagare Sonali Balasaheb	
					Hande Bhagyashree Manik	
					Jadhav Nikita Balu	
					Jadhav Nikita Ekanth	
					Jadhav Pankaj Balasaheb	
					Kajal Suresh Shete	
					Lohote Prathamesh Yashwant	
					Madhe Surekha Hari	
					Mahale Amol Vasant	
					Mande Pooja Arun	
					Mayekar Hritik Prasad	
					Nalawade Sanchit Satish	
					Navale Adesh Lahanu	
					Nikam Tushar Prakash	
					Parekh Megha Anilkumar	
					Patil Bhimashankar Rajkumar	
					Pawar Mahesh Dashrath	
					Saurabh	
					Shaikh Fiza Hamid	
					Shinde Ashwini Sanjay	
					Shinde Divya Shantaram	
					Shingote Nikita Baban	
					Jadhav Rahul Sanjay	
					Rain Shivam Jagadish	
					Rokade Omkar Sambhaji	
					Shelke Shivangi Santosh	

Computer Engineering	632224510	Mini Project & Project Base Learning	210248 & 210260	2020	Waman Sujit Sanjay	
					Bhor Rutuja Bharat	
					Bhangare Rushikesh Ambadas	
					Tohokae Saurabh Prakash	
					Doke Sanket Vitthal	
					Khule Gayatri Narayan	
					Yadav Saurabh Gajendra	
					Totare Pooja Sandip	
					Bhor Anisha Sunil	
					Gangarde Shubham Ashok	
					Varpe Shital Eknath	
					Nawale Prajakta Nandu	
					Chavan Manasi Uttamrao	
					Thorat Rahul Sanjay	
					Karande Aditya Jalinder	
					Suryawanshi Vikram Vishwanath	
					Yadav Yogendra Rajendra	
					Ambre Rushikesh Kisan	
					Wagh Tejas Janardan	
					Shinde Tushar Suresh	
					Walunj Sandesh Shivshankar	
					Gunjal Nikita Dnyaneshwar	
					Sonone Anuradha Deoman	
					Kambale Nikhil Pramod	
					Nawale Anirudha	
					Bhor Pritesh Jaysing	
					Pawar Pankaj Kundlink	
					Bhor Shital Kisan	
					Shah Darshana Sunil	
					Phopse Mayank Krushana	
					Pathare Rajesh Laxman	
					Pawar Bhushan Subhash	
					Wable Vishal Dattatrya	
					Lange Shrikant Subhash	
					Alawane Shiwani	
					Sable Gitesh Bhaskar	
					Lande Bhausaheb Kashinath	
					Suraj Rajendra Jadhav	
					Pathan Shahbaj Salim	

Mechanical Engineering	632261210	Project Stage I & Project Stage II	402046 402051	2020	Kurhe Shubham Sanjay
					Inamdar Jumir Iqbal
					Bhor Snehal Ganpat
					Patil Ketu Rajendrabhai
					Gaikwad Rohit Jagannath
					Ansari Fazle Karim Kafil
					Kale Vikas Sitaram
					Pawale Vijay Dnyaneshwar
					Khote Nitin Shriram
					Annasaheb Takbhate
					Vicky Thorat
					Chaudhari Viraj Gajanan
					Raut Bhavik Bharat
					Shahu Deepakkumar Hadu
					Baviskar Sandip Ashok
Kavchat Pratik Rajendra					
Amol Jorvekar					
First Year Engineering	632224510	Project Base Learning	110013	2020	Rajhans Pravan Mahiniraj
					Kakade Vaishanvi Vinod
					Ughade Pravin Gorakh
					Alhat Swati Atmaram
					Dherange Rakesh Sudam
					Mundhe Prachi Namdev
					Bhosale Ashok Shriram
					Vethekar Gauri Jagannath
					Yechawad Prathamesh Devidas
					Mehetre Tushar Prakash
					Mehetre Renuka Dilip
					Shaikh Sahil Iliyas
					Patil Pooja Vilas

Raspberry Pi computer is developed. The connectivity is divided into server side software and client side software.

7. IoT based Web Controlled Home Automation using Raspberry Pi.

8. A Simple IoT Project with the ESP8266 WiFi module: Here is a simple project with ESP8266 wi-fi module. This project collects the temperature and is displayed on the network.

9. Implement a RFID Based IoT Project

404188 Project Phase-I		
Credits: 02		
Teaching Scheme: Tutorial: 2 Hrs/week		Examination Scheme: OR :50Marks
Note: <ol style="list-style-type: none"> 1. Term work assessment is based on the project topic. It consists of Literature Survey and basic project work. The abstract of the project should be submitted before Term work assessment. 2. The report consists of the Literature Survey, basic project work and the size of the report should be maximum of 40 pages. 3. The examination is conducted by two examiners (internal and external) appointed by the university. The examiners appointed must have minimum 5 years of experience with UG qualification or 2 years with PG qualification. 4. The assessment is based on Innovative Idea, Depth of understanding, Applications, Individual contributions, presentation, and the grade given by the internal guide based on the work carried out in a semester. 5. A log book of Work carried out during the semester will be maintained with monthly review remarks by the guide and HoD. 6. A certified copy of report is required to be presented to external examiner at the time of final examination. 		

Audit Course 5 (1):Green Energy
About the course This course provides an introduction to energy systems and renewable energy resources, with a scientific examination of the energy field and an emphasis on alternate energy sources and their technology and application. The students will explore society's present needs and future energy demands, examine conventional energy sources and systems, including fossil fuels and nuclear energy, and then focus on alternate, renewable energy sources such as solar, biomass (conversions), wind power, geothermal, and hydro. Energy conservation methods will be emphasized
Course Objectives: <ul style="list-style-type: none"> • To understand the conventional and non conventional energy sources • To understand different renewable energy sources and their generation • To understand the various applications & benefits of renewable energy sources • To enable student to understand project management, energy audit and Installation

Course Outcomes:

After the successful completion of this course, the student is expected to have/be able to:

1. List and generally explain the main sources of energy and their primary applications in the India, and the world.
2. Describe the challenges and problems associated with the use of various energy sources, including fossil fuels, with regard to future supply and the environment.
3. Discuss remedies/potential solutions to the supply and environmental issues associated with fossil fuels and other energy resources.
4. List and describe the primary renewable energy resources and technologies.
5. Describe/illustrate basic electrical concepts and system components.
6. Convert units of energy—to quantify energy demands and make comparisons among energy uses, resources, and technologies.
7. Collect and organize information on renewable energy technologies as a basis for further analysis and evaluation.

Unit 1: Introduction of conventional & renewable energy sources:

Environment aspects, Energy Efficient materials, Pollution Control techniques, Energy conservation, Energy Audits

Unit II: Details of renewable energy sources & various systems

Solar, Wind, Hydro, Bio-power, Waste to Power

Unit III: Various applications & benefits

Renewable power projects for smart cities & rural electrification, Power conversion techniques, Off-grid/Stand-alone systems, Grid connected systems, Design of Grid-tied & off-grid Solar PV systems, Design of Grid-tied & off-grid Wind systems, Design of Grid-tied & off-grid Hybrid systems, Storage technologies

Unit IV: Project management

Installation & commissioning techniques & standards, Remote monitoring & control techniques, Performance optimization & control, Practical's / Hands-on exposure, Maintenance & Service of plants, Government policies

Guidelines for Conduction (Any one or more of following but not limited to)

- Guest Lectures
- Group Activities
- Assignments
- Taking up small project for short duration

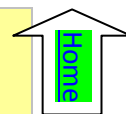
Guidelines for Assessment (Any one or more of following but not limited to)

- Practical Test
- Presentation
- Paper / (Theory assessment test)
- Report

Sources/ References:

1. Boyle, Godfrey. 2004. Renewable Energy (2nd edition). Oxford University Press, 450 pages (ISBN: 0-19- 926178-4).
2. Boyle, Godfrey, Bob Everett, and Janet Ramage (eds.) 2004. Energy Systems and Sustainability: Power for a Sustainable Future. Oxford University Press, 619 pages (ISBN: 0-19-926179-2)
3. Ashok Desai V, *Non-Conventional Energy*, Wiley Eastern Ltd, 1990.
4. Mittal K.M, *Non-Conventional Energy Systems*, Wheeler Publishing Co. Ltd, 1997.
5. Ramesh R, Kurnar K.U, *Renewable Energy Technologies*, Narosa Publishing House, New Delhi, 1997.
6. Renewable Energy Resources by John Twidell and Tony Weir.

404195 Project Phase-II		
Credits:06		
Teaching Scheme:		Examination Scheme:
Tutorial: 6 Hrs/Week		TW: 150 Mark OR: 50 Marks
<p>1. GroupSize The student will carry the project work individually or by a group of students. Optimum group size is in 3 students. However, if project complexity demands a maximum group size of 4 students, the committee should be convinced about such complexity and scope of the work.</p> <p>2. Selection and approval of topic Topic should be related to real life application in the field of Electronics and Telecommunication OR Investigation of the latest development in a specific field of Electronics or Communication or Signal Processing OR The investigation of practical problem in manufacture and / or testing of electronics or communication equipment OR The Microprocessor / Microcontroller based applications project is preferable. OR Software development project related to VHDL, Communication, Instrumentation, Signal Processing and Agriculture Engineering with the justification for techniques used / implemented is accepted. OR Interdisciplinary projects should be encouraged. The examination will be conducted independently in respective departments.</p> <p>3. Note: The group should maintain a logbook of activities. It should have entries related to the work done, problems faced, solution evolved etc., duly signed by internal and external guides. Project report must be submitted in the prescribed format only. No variation in the format will be accepted. One guide will be assigned at the most 3 project groups.</p>		



Savitribai Phule Pune University
Fourth Year of Computer Engineering (2015 Course)
410248:Project Work Stage I

Teaching Scheme:	Credit	Examination Scheme:
Practical : 02 Hours/Week	02	Presentation: 50 Marks

Course Objectives:

- To Apply the knowledge for solving realistic problem
- To develop problem solving ability
- To Organize, sustain and report on a substantial piece of team work over a period of several months
- To Evaluate alternative approaches, and justify the use of selected tools and methods,
- To Reflect upon the experience gained and lessons learned,
- To Consider relevant social, ethical and legal issues,
- To find information for yourself from appropriate sources such as manuals, books, research journals and from other sources, and in turn increase analytical skills.
- To Work in TEAM and learn professionalism.

Course Outcomes:

On completion of the course, student will be able to–

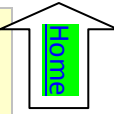
- Solve real life problems by applying knowledge.
- Analyze alternative approaches, apply and use most appropriate one for feasible solution.
- Write precise reports and technical documents in a nutshell.
- Participate effectively in multi-disciplinary and heterogeneous teams exhibiting team work, Inter-personal relationships, conflict management and leadership quality.

Guidelines

Project work Stage – I is an integral part of the Project work. In this, the student shall complete the partial work of the Project which will consist of problem statement, literature review, SRS, Model and Design. The student is expected to complete the project at least up to the design phase. As a part of the progress report of project work Stage-I, the candidate shall deliver a presentation on the advancement in Technology pertaining to the selected project topic. The student shall submit the duly certified progress report of Project work Stage-I in standard format for satisfactory completion of the work by the concerned guide and head of the Department/Institute.

The examinee will be assessed by a panel of examiners of which one is necessarily an external examiner. The assessment will be broadly based on work undergone, content delivery, presentation skills, documentation, question-answers and report.

Follow guidelines and formats as mentioned in Project Workbook recommended by Board of Studies.



Savitribai Phule Pune University
Fourth Year of Computer Engineering (2015 Course)
410256:Project Work Stage II

Teaching Scheme: Practical : 06 Hours/Week	Credit 06	Examination Scheme: Term Work: 100 Marks Presentation: 50 Marks
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Course Objectives:

- To follow SDLC meticulously and meet the objectives of proposed work
- To test rigorously before deployment of system
- To validate the work undertaken
- To consolidate the work as furnished report.

Course Outcomes:

On completion of the course, student will be able to–

- Show evidence of independent investigation
- Critically analyze the results and their interpretation.
- Report and present the original results in an orderly way and placing the open questions in the right perspective.
- Link techniques and results from literature as well as actual research and future research lines with the research.
- Appreciate practical implications and constraints of the specialist subject

Guidelines

In Project Work Stage–II, the student shall complete the remaining project work which consists of Selection of Technology and Tools, Installations, UML implementations, testing, Results, performance discussions using data tables per parameter considered for the improvement with existing/known algorithms/systems and comparative analysis and validation of results and conclusions. The student shall prepare and submit the report of Project work in standard format for satisfactory completion of the work that is the duly certified by the concerned guide and head of the Department/Institute.

Follow guidelines and formats as mentioned in Project Workbook recommended by Board of Studies.

<p style="text-align: center;">Savitribai Phule Pune University Final Year of Mechanical Engineering (2015 Course) Course Code : 402046 Course Name : Project – I</p>						
Teaching Scheme:			Credits		Examination Scheme:	
Theory	: --		TH	: --	Theory	In-Sem : --
Practical	: 04 hrs per week		TW	: 02		PR : --
						OR : 25
						TW : 25

Course Objectives:

- To have ideology of the industrial project.
- Hands on working with tools, tackles and machines
- To carry out literature survey
- To do brain storming for mechanical engineering system

Course Outcomes:

On completion of the course, students will be able to -

- Find out the gap between existing mechanical systems and develop new creative new mechanical system.
- Learn about the literature review
- Get the experience to handle various tools, tackles and machines.

Course Contents

INSTRUCTIONS FOR PROJECT REPORT WRITING (Project Stage I)

It is important that the procedures listed below be carefully followed by all the students of B.E. (Mechanical Engineering).

1. Prepare **Three Spiral Bound Copies** of your manuscript.
2. Limit your Project Stage I to 25– 30 pages (preferably)
3. The *footer must include* the following:
 Institute Name, B.E. (Mechanical) Times New Roman 10 pt. and centrally aligned.
4. Page number as second line of footer, Times New Roman 10 pt. centrally aligned.
5. Print the manuscript using
 - a) Letter quality computer printing.
 - b) The main part of manuscript should be Times New Roman 12 pt. with alignment - justified.
 - c) Use 1.5 line spacing.
 - d) Entire report shall be of 5- 7 chapters
6. Use the paper size 8.5’’ × 11’’ or A4 (210 × 197 mm). Please follow the margins given below.

Margin Location	Paper 8.5’’ × 11’’	Paper A4 (210 × 197 mm)
Top	1’’	25.4 mm
Left	1.5’’	37 mm
Bottom	1.25’’	32 mm
Right	1’’	25.4 mm

7. All paragraphs will be *1.5 lines spaced with a one blank line between each paragraph*. Each paragraph will begin with *without any indentation*.
8. *Section titles* should be bold with *14 pt.* typed in all capital letters and should be left aligned.
9. *Sub-Section headings* should be aligning at the left with *12 pt.* bold and Title Case (the first letter of each word is to be capitalized).
10. Illustrations (charts, drawings, photographs, figures) are to be in the text. Use only illustrations really pertinent to the text. Illustrations must be sharp, clear, black and white. Illustrations downloaded from internet are not acceptable.
 - a) Illustrations should not be more than two per page. One could be ideal
 - b) Figure No. and Title at bottom with 12 pt.
 - c) Table No. and Title at top with 12 pt.
 - d) Legends below the title in 10 pt.
 - e) Leave proper margin in all sides
 - f) Illustrations as far as possible should not be photo copied.
11. Photographs if any should be of glossy prints
12. Please use SI system of units only.
13. Please number the pages on the front side, centrally below the footer
14. References should be either in order as they appear in the thesis or in alphabetical order by last name of first author
15. Symbols and notations if any should be included in nomenclature section only
16. Following will be the order of report
 - i. Cover page and Front page (*as per the specimen on separate sheet*)
 - ii. Certificate from the Institute (*as per the specimen on separate sheet*)
 - iii. Acknowledgements
 - iv. Contents
 - v. List of Figures
 - vi. List of Tables
 - vii. Nomenclature
 - viii. Abstract (A brief abstract of the report not more than 150 words. The heading of abstract i.e. word "Abstract" should be bold, Times New Roman, 12 pt. and should be typed at the center. The contents of abstract should be typed on new line without space between heading and contents. Try to include one or two sentences each on motive, method, key-results and conclusions in Abstract)
 1. Introduction (2-3 pages) (TNR – 14 Bold)
 - 1.1 Problem statement (TNR – 12)
 - 1.2 Objectives
 - 1.3 Scope
 - 1.4 Methodology
 - 1.5 Organization of Dissertation
 2. Literature Review (12-16 pages)

Discuss the work done so far by researchers in the domain area and their significant conclusions. No derivations, figures, tables, graphs are expected.
 3. This chapter shall be based on your own simulation work (Analytical/ Numerical/FEM/CFD) (8 - 12 pages)
 4. Experimental Validation - This chapter shall be based on your own experimental work

(2 - 3 pages)

5. Concluding Remarks and Scope for the Future Work (1 - 2 pages)

(If above Chapters 3, 4, 5 not completed please mention the plan for the same and time period for completion and detail activity chart).

References ANNEXURE (if any) (Put all mathematical derivations, Simulation program as Annexure)

17. All section headings and subheadings should be numbered. For sections use numbers 1, 2, 3, and for subheadings 1.1, 1.2, etc and section subheadings 2.1.1, 2.1.2, etc.
18. References should be given in the body of the text and well spread. No verbatim copy or excessive text from only one or two references. If figures and tables are taken from any reference then indicate source / citation of it. Please follow the following procedure for references

Reference Books :

Collier, G. J. and Thome, J. R., Convective boiling and condensation, 3rd ed., Oxford University Press, UK, 1996, pp. 110 – 112.

Papers from Journal or Transactions :

Jung, D. S. and Radermacher, R., Transport properties and surface tension of pure and mixed refrigerants, *ASHRAE Trans*, 1991, 97 (1), pp. 90 – 98.

Bansal, P. K., Rupasinghe, A. S. and Jain, A. S., An empirical correction for sizing capillary tubes, *Int. Journal of Refrigeration*, 1996, 19 (8), pp.497 – 505.

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Colbourne, D. and Ritter, T. J., *Quantitative assessment of flammable refrigerants in room air conditioners*, Proc. of the Sixteenth International Compressor Engineering Conference and Ninth International Refrigeration and Air Conditioning Conference, Purdue University, West Lafayette, Indiana, USA, 2002, pp. 34 – 40.

Reports, Handbooks etc. :

United Nations Environmental Programme, Report of the Refrigeration, Air Conditioning and Heat Pumps, Technical Option Committee, 2002, Assessment - 2002.

ASHRAE Handbook: Refrigeration, 1994 (Chapter 44)

Patent :

Patent no, Country (in parenthesis), date of application, title, year.

Internet :

www.(Site) [Give full length URL] accessed on date

A Project Stage-I Report on
(TNR, 16pt, centrally aligned)

Title of the Project Report

(TNR, 27pt, Bold, Centrally Aligned, Title Case)

By

(TNR, 16pt, Centrally Aligned)

Mr. Student's 1 Name

(TNR, 16pt, Centrally Aligned)

Mr. Student's 2 Name

(TNR, 16pt, Centrally Aligned)

Mr. Student's 3 Name

(TNR, 16pt, Centrally Aligned)

Mr. Student's 4 Name

(TNR, 16pt, Centrally Aligned)

Guide

Guide's Name

(TNR, 16pt, Centrally Aligned)

Institute Logo

Department of Mechanical Engineering

Name of the Institute

[2018-19]

(TNR, 22pt, Title Case Centrally Aligned)

Name of the Institute

Institute Logo

C E R T I F I C A T E

This is to certify that **Mr. (*Name of the Student*)**, has successfully completed the Project Stage – I entitled “(***Title of the Project***) ” under my supervision, in the partial fulfillment of Bachelor of Engineering - Mechanical Engineering of University of Pune.

Date:

Place:

Guide's Name
Guide

Internal Examiner

HoD Name
Head of the Department

Principal Name
Principal

Seal

<p style="text-align: center;">Savitribai Phule Pune University</p> <p style="text-align: center;">Final Year of Mechanical Engineering (2015 Course)</p> <p>Course Code : 402051 Course Name : Project – II</p>						
Teaching Scheme:		Credits		Examination Scheme:		
Theory	: --	TH	: --	Theory	In-Sem : --	PR : --
Practical	: 12 hrs per week	TW	: 06		End-Sem : --	OR : 100
				TW : 100		

Course Contents		
INSTRUCTIONS FOR PROJECT REPORT WRITING		
It is important that the procedures listed below be carefully followed by all the students of B.E. (Mechanical Engineering).		
<div>1. Prepare <i>Three Hard Bound Copies</i> of your manuscript.</div> <div>2. Limit your Dissertation report to 80– 120 pages (preferably)</div> <div>3. The footer must include the following:<div>Institute Name, B.E. (Mechanical) Times New Roman 10 pt. and centrally aligned.</div></div> <div>4. Page number as second line of footer, Times New Roman 10 pt. centrally aligned.</div> <div>5. Print the manuscript using<div>a) Letter quality computer printing.</div><div>b) The main part of manuscript should be Times New Roman 12 pt. with alignment - justified.</div><div>c) Use 1.5 line spacing.</div><div>d) Entire report shall be of 5- 7 chapters</div></div> <div>6. Use the paper size 8.5'' × 11'' or A4 (210 × 197 mm). Please follow the margins given below.</div>		
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 - 1.5 Organization of Dissertation
 2. Literature Review (20-30 pages)

Discuss the work done so far by researchers in the domain area and their significant conclusions. No derivations, figures, tables, graphs are expected.
 3. This chapter shall be based on your own simulation work (Analytical/ Numerical/FEM/CFD) (15- 20 pages)
 4. Experimental Validation - This chapter shall be based on your own experimental work (15-20 pages)
 5. Concluding Remarks and Scope for the Future Work (2-3 pages)

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 17. All section headings and subheadings should be numbered. For sections use numbers 1, 2, 3, ... and for subheadings 1.1, 1.2, etc and section subheadings 2.1.1, 2.1.2, etc.
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University Press, UK, 1996, pp. 110 – 112.

Papers from Journal or Transactions :

Jung, D. S. and Radermacher, R., Transport properties and surface tension of pure and mixed refrigerants, *ASHRAE Trans*, 1991, 97 (1), pp. 90 – 98.

Bansal, P. K., Rupasinghe, A. S. and Jain, A. S., An empirical correction for sizing capillary tubes, *Int. Journal of Refrigeration*, 1996, 19 (8), pp.497 – 505.

Papers from Conference Proceedings :

Colbourne, D. and Ritter, T. J., *Quantitative assessment of flammable refrigerants in room air conditioners*, Proc. of the Sixteenth International Compressor Engineering Conference and Ninth International Refrigeration and Air Conditioning Conference, Purdue University, West Lafayette, Indiana, USA, 2002, pp. 34 – 40.

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Mr. Student's 1 Name

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Mr. Student's 3 Name

(TNR, 16pt, Centrally Aligned)

Mr. Student's 4 Name

(TNR, 16pt, Centrally Aligned)

Guide

Guide's Name

(TNR, 16pt, Centrally Aligned)

Institute Logo

Department of Mechanical Engineering

Name of the Institute

[2018-19]

(TNR, 22pt, Title Case Centrally Aligned)

Name of the Institute

Institute Logo

C E R T I F I C A T E

This is to certify that *Mr. (Name of the Student)*, has successfully completed the Project Stage – I entitled “*(Title of the Project)*” under my supervision, in the partial fulfillment of Bachelor of Engineering - Mechanical Engineering of University of Pune.

Date:

Place:

Guide's Name
Guide

Internal Examiner

HoD Name
Head of the Department

Principal Name
Principal

External Examiner

Seal

304196 Employability Skills and Mini Project

Credits: TH-02 PR-01

Teaching Scheme:

Lecture : 02 hr/week

Practical : 02 hr/week

Course Objectives:

- To understand the “Product Development Process” including budgeting through Mini Project.
- To plan for various activities of the project and distribute the work amongst team members.
- To inculcate electronic hardware implementation skills by -
- Learning PCB artwork design using an appropriate EDA tool.
- Imbibing good soldering and effective trouble-shooting practices.
- Following correct grounding and shielding practices.
- To develop student’s abilities to transmit technical information clearly and test the same by delivery of Seminar based on the Mini Project.
- To understand the importance of document design by compiling Technical Report on the Mini Project work carried out.

Course Outcomes:

On completion of the course, student will be able to

1. Understand, plan and execute a Mini Project with team.
2. Implement electronic hardware by learning PCB artwork design, soldering techniques, testing and troubleshooting etc.
3. Prepare a technical report based on the Mini project.
4. Deliver technical seminar based on the Mini Project work carried out.

Course Contents

Execution of Mini Project

- Project group shall consist of **not more than 3** students per group.
- Mini Project Work should be carried out in the Design / Projects Laboratory.
- Project designs ideas can be necessarily adapted from recent issues of electronic design magazines. Application notes from well known device manufacturers may also be referred.

- Use of Hardware devices/components is mandatory.
- Layout versus schematic verification is mandatory.
- Bare board test report shall be generated.
- Assembly of components and enclosure design is mandatory.

B: Selection: Domains for projects may be from the following, but not limited to:

- Instrumentation and Control Systems
 - Electronic Communication Systems
 - Biomedical Electronics
 - Power Electronics
 - Audio , Video Systems
 - Embedded Systems
 - Mechatronic Systems
- Microcontroller based projects should preferably use Microchip PIC controllers/ATmega controller/AVR microcontrollers.

C. Monitoring: (for students and teachers both)

Suggested Plan for various activities to be monitored by the teacher.

Week 1 & 2: Formation of groups, Finalization of Mini project & Distribution of work.

Week 3 & 4: PCB artwork design using an appropriate EDA tool, Simulation.

Week 5 to8:PCB manufacturing through vendor/at lab, Hardware assembly, programming (if required) Testing, Enclosure Design, Fabrication etc

Week 9 & 10:Testing of final product, Preparation, Checking & Correcting of the Draft Copy of Report

Week 11 & 12: Demonstration and Group presentations.

Log book for all these activities shall be maintained and shall be produced at the time of examination.

D. Report writing

- A project report with following contents shall be prepared:
 - Title
 - Specifications
 - Block diagram
 - Circuit diagram
 - Selection of components, calculations

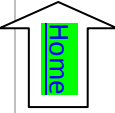
- Simulation results
- PCB artwork
- Layout versus schematic verification report
- Testing procedures
- Enclosure design
- Test results
- Conclusion
- References

Text Books:

1. Thomas C Hayes, Paul Horowitz,, “The Art of Electronics”,Newens Publication
2. Analog Circuit Design: Art, Science and Personalities, by Jim Williams (Editor) , EDN series for Design Engineers,
3. M Ashraf Rizvi,“ Effective Technical Communication“, Tata McGraw Hill Education Pvt. Ltd.

Reference Books:

1. . Robert Boylested, “ Essentials of Circuit Analysis”, PHI Puublications
2. Meenakshi Raman, Sangeeta Sharma,“ Technical Communication, Principles and Practice“, Oxford University Press
3. A.E. Ward, Angus, “ Electronic Product Design”, Stanley thornes Publishers, UK.
4. C Muralikrishna, Sunita Mishra,“ Communication Skills for Engineers“, Pearson



6.	Mini-Project 2 on SVM: Apply the Support vector machine for classification on a dataset obtained from UCI ML repository. For Example: Fruits Classification or Soil Classification or Leaf Disease Classification
7.	Mini-Project 3 on PCA: Apply the Principal Component Analysis for feature reduction on any Company Stock Market Dataset
410251:: : Information and Cyber Security	
1.	Implementation of S-DES
2.	Implementation of S-AES
3.	Implementation of Diffie-Hellman key exchange
4.	Implementation of RSA.
5.	Implementation of ECC algorithm.
6.	Mini Project 1: SQL Injection attacks and Cross -Site Scripting attacks are the two most common attacks on web application. Develop a new policy based Proxy Agent, which classifies the request as a scripted request or query based request, and then, detects the respective type of attack, if any in the request. It should detect both SQL injection attack as well as the Cross-Site Scripting attacks.
7.	Mini Project 2: This task is to demonstrate insecure and secured website. Develop a web site and demonstrate how the contents of the site can be changed by the attackers if it is http based and not secured. You can also add payment gateway and demonstrate how money transactions can be hacked by the hackers. Then support your website having https with SSL and demonstrate how secured website is.

Savitribai Phule Pune University
Third Year of Computer Engineering (2015 Course)
310256: Web Technology Lab

Teaching Scheme:

PR: 02 Hours/Week

Credit

01

Examination Scheme:

TW: 25 Marks

PR: 50 Marks

Companion Course: Web Technology (310254)

Course Objectives:

- To use current client side and server side web technologies
- To implement communication among the computing nodes using current client side and server side technologies
- To design and implement web services with content management

Course Outcomes:

On completion of the course, student will be able to–

- develop web based application using suitable client side and server side web technologies
- develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management

Guidelines for Instructor's Manual

The instructor's manual is to be developed as a hands-on resource and reference. The instructor's manual need to include prologue (about University/program/ institute/ department/foreword/ preface etc), University syllabus, conduction & Assessment guidelines, topics under consideration-concept, objectives, outcomes, set of typical applications/assignments/ guidelines, and references.

Guidelines for Student Journal

The laboratory assignments are to be submitted by student in the form of journal. Journal consists of prologue, Certificate, table of contents, and **handwritten write-up** of each assignment (Title, Objectives, Problem Statement, Outcomes, software & Hardware requirements, Date of Completion, Assessment grade/marks and assessor's sign, Theory- Concept/technology/tool in brief, design, test cases, conclusion/analysis. **Program codes with sample output of all performed assignments are to be submitted as softcopy.**

As a conscious effort and little contribution towards Green IT and environment awareness, attaching printed papers as part of write-ups and program listing to journal may be avoided. Use of DVD containing students programs maintained by lab In-charge is highly encouraged. For reference one or two journals may be maintained with program prints at Laboratory.

Guidelines for Assessment

Continuous assessment of laboratory work is done based on overall performance and lab assignments performance of student. Each lab assignment assessment will assign grade/marks based on parameters with appropriate weightage. Suggested parameters for overall assessment as well as each lab assignment assessment include- timely completion, performance, innovation, efficient codes, punctuality and neatness.

Guidelines for Practical Examination

Both internal and external examiners should jointly set problem statements. During practical assessment, the expert evaluator should give the maximum weightage to the satisfactory implementation of the problem statement. The supplementary and relevant questions may be asked at the time of evaluation to test the student's for advanced learning, understanding of the fundamentals, effective and efficient implementation. So encouraging efforts, transparent evaluation and fair approach of the evaluator will not create any uncertainty or doubt in the minds of the students. So adhering to these principles will consummate our team efforts to the promising start of the student's academics.

Guidelines for Laboratory Conduction

The instructor is expected to frame the assignments by understanding the prerequisites, technological aspects, utility and recent trends related to the topic. The assignment framing policy need to address the average students and inclusive of an element to attract and promote the intelligent students. The instructor may set multiple sets of assignments and distribute among batches of students. It is appreciated if the assignments are based on real world problems/applications. Encourage students for appropriate use of Hungarian notation, proper indentation and comments. Use of open source software is to be encouraged. In addition to these, instructor may assign one real life application in the form of a mini-project based on the concepts learned. Instructor may also set one assignment or mini-project that is suitable to respective branch beyond the scope of syllabus.

Suggested List of Laboratory Assignments

1.	Lab Assignment on Unit I: Assignment 1a: Installation and Configuration of Web Application Servers Tomcat, Apache, WebSphere, JBoss, GlassFish. Assignment 1b: Design and develop any suitable web application using HTML, CSS and XML in consultation of course instructor.
2.	Lab Assignment on Unit II: Assignment 2: Perform validation of all fields in assignment no.1 by using Java script/JQuery.
3.	Lab Assignment on Unit III: Assignment 3: Add dynamic web application essence in assignment no. 2 using Servlet, JSP and backend.
4.	Lab Assignment on Unit IV: Assignment 4: Add dynamic web application essence in assignment no. 2 using PHP, MySQL database connectivity and AJAX controls.
5.	Lab Assignment on Unit V: Assignment 5: Re-Design, develop and deploy assignment no. 3 of unit –III using Strut Re-Design, develop and deploy assignment no. 4 of unit –IV using Angular JS
6.	Lab Assignment on Unit VI: Assignment 6: Design, Develop and Deploy separate web application using EJB/CMS/JSF/Spring/Bootstrap.
7.	Assignment on Software Modeling and Design

Reference Books:

1. Aleksa V and James Goodwill, “Apache Tomcat 7”, Apress, 2011, ISBN: 10: 1430237236
2. Bryan Basham, Kathy Sierra, Bert Bates, “JSP: Passing the Sun Certified Web Component Developer Exam”, O'Reilly Media ISBN: 978-0-596-51668-0
3. Chirag Rathod, Jonathan Wetherbee, Peter Zadrozny, and Raghu R. Kodali, “Beginning EJB 3: Java EE 7 Edition”, Apress, 2013, ISBN : 9781430246923
4. Richard Monson-Haefel, “J2EE Web Services”, Addison-Wesley Professional, First Edition, 2004, ISBN: 10: 0321146182
5. Chuck Cavaness, “Programming Jakarta Struts”, O’relly Media, second edition 2004, ISBN: 978-0-596-00651-8;
6. Michael Morrison, Lynn Beighley, “Head First PHP & MySQL: A Brain-Friendly Guide”, O’relly Media, second edition 2008, ISBN :13: 9788184046588
7. Dan Rahmel, “Advanced Joomla!”, Apress, First Edition, 2013, ISBN: 13: 9781430216285
8. Iwein Fuld, Marius Bogoevici, Mark Fisher, Jonas Partner”, Spring Integration in Action”, Manning, 2012, ISBN : 13: 9781935182436.