Tulsiramji Gaikwad-Patil College of Engineering and Technology
Wardha Road, Nagpur-441 108
NAAC Accredited

Department of Computer Science & Engineering

Session 2017-18

Date:11/05/2018

Application for Internship Training

To

The HoD

Computer Science & Engineering Department,

TGPCET, Nagpur

Subject: Application for the issue the permission letter for Internship Training

Company Name: N2R Technologies, Nagpur

Applicant Name: Manasvi R. Thakare, Avanti Jadhao

Respected Madam,

We the students of VII Semester Computer Science & Engineering Department of Tulsiramji Gaikwad-Patil College of Engineering & Technology Nagpur, request you to allow us to do internship. The duration of training is for 6 months.

So kindly permit us have been thoroughly preparing industrial working culture under the guidance of experienced employee and gaining practical knowledge will develop our professional level with effectiveness.

Thanking You.

Your's faithfully,

Manasvi R. Thakare [VII Sem CSE] Mthakre

Avanti Jadhao [VII Sem CSE] Avanti

Tulsiramji Gaikwad-Patil College of Engineering and Technology
Wardha Road, Nagpur-441 108
NAAC Accredited

Department of Computer Science & Engineering

Session 2017-18

Ref: TGPCET/CSE/2017-18/233 Date : 12/05/2018

To,
The Manager,
N2R Technologies.
Nagpur.

Subject:- Internship Training for students of B.E. VII SEMESTER of Computer Science and Engineering Department in your esteemed organization.

Respected Sir/Madam,

Greetings from Tulsiramji Gaikwad-Patil College of Engineering and Technology, Mohagaon, Wardha Road, Nagpur.

We are conducting four years fulltime Engineering degree in Computer Science and Engineering course affiliated to R.T.M. Nagpur University, recognized by Maharashtra State Government and approved by AICTE , New Delhi.

Some of our students of B.E.(CSE) VII Semester are willing to take internship training in software technology practices in your esteem organization. After completion of training students has to submit their work as a Internship report to the Head of Department.

The following students of our college in B.E. VII Sem(CSE) had approached you for their Internship Training in your organization :-

Sr. No.	Name of Students
1	Manaswi Thakare
2	Avanti Jadhao

I assure you that the information collected by the students will be exclusively used for academic pursuits only. You are requested to co-operate and needful for giving the opportunity to work with your organization.

With Regards

TULSIRAMJI GAIKWAD-PATIL COLLEGE OF ENGG. & TECH. SEAL NAGPUR

Prof.Roshani Talmale
HoD (CSE)
T.G.P.C.E.T, Nagpur

Head of Dept. (Computer Science & Engg.)
Tulsiramji Gaikwad-Patil College of
Engineering and Technology, Nagpur

N2R TECHNOLOGIES
n2rtechnologies@gmail.com
+91 72764 37476

Reg No. : 1852300312699694

Date : 19/06/2018

TO WHOMESOEVER IT MAY CONCERN

This is to certify that Mrs. Manasvi R. Thakare has completed her 1 months course of Java conducted in Duration of 18th May 2018 to 18th June 2018.

She is working on project Training and Placement of with our company as a trainee for 1 month in technology Java.

Yours Truly,

Mrs. Pooja G. Pimpalshende
Director
N 2 R Technologies

N 2 R Technologies Nagpur

NAAC Accredited
TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology
Mohgaon, Wardha Road, Nagpur – 441 108
(Approved by AICTE, Recognised by Govt. of Maharashtra, Affiliated to RTM Nagpur University, Nagpur)

"Industrial Training Report on JAVA"

This Industrial Case Study report is submitted to
Rashtrasant Tukdoji Maharaj Nagpur University
in partial fulfillment of the requirement
for the award of the degree

of

Bachelor of Engineering in Computer Science & Engineering

By

Ms. Manaswi R. Thakare

COMPUTER SCIENCE & ENGINEERING DEPARTMENT

SESSION 2017-18

CERTIFICATE OF APPROVAL

This is to certify that the Industrial Case Study entitled **"The inventory Management of window"** carried out by **Ms. Manaswi R. Thakare** of the Final year Computer Science & Engineering, during the academic year 2017-2018, in partial fulfillment of the requirement for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** offered by the **Rashtrasant Tukdoji Maharaj Nagpur University**.

Mrs. Pooja Pimpalshende
(Industry Mentor Name)

Prof. Roshani Talmale
(HOD of CSE Department)

Date: 21/06/2018

Place: Nagpur

CONTENTS

ACKNOWLEDGEMENT

We would like to express my deep sense of gratitude to all engineers for giving me an opportunity to do training at N2R Technologies.

We got the good knowledge of trouble shooting of hardware, networking related problems and connecting local area networking. We feel very lucky to undergo training in such organizing. They have shown us right path that we could follow in the future to reach maximum possible heights in my life.

Finally, we like to thanks all staff member of Web Analysis Computer for their very good support during my training.

ABBREVATION

There are literally thousands of computer Abbreviations out there. Many are concerned with the technical aspects of the computer while other deal with personal communication. Following are more common ones that you may have but do not know exactly what they mean.

Following are some abbreviation which are used in java:

1) GPL: General Public License

2) RAM : Random Access Memory

3) JDK : Java Development kit

4) JVM : Java Virtual Machine

5) ANSI : American National Standard Institute

6) JRE: Java Runtime Environment

7) Java Standard Edition (JSE) – This version is the basic platform for Java. The course will focus on this edition.

8) Java Enterprise Edition (JEE) – This edition is mainly for developing and running
distributed multitier architecture Java applications, based largely on modular software
components running on an application server. We will not be covering this version in the course.

9) Java Micro Edition (JME) – This edition is primarily for developing programs to run on consumer applicances, such as PDAs and cell phones.

• **Multithreaded**: With Java's multithreaded feature it is possible to write programs that can perform many tasks simultaneously.

• **Interpreted**: Java byte code is translated on the fly to native machine instructions and is not stored anywhere. The development process is more rapid and analytical since the linking is an incremental and light-weight process.

• **High Performance** : With the use of Just-In-Time compilers, Java enables high performance.

• **Distributed**: Java is designed for the distributed environment of the internet.

• **Dynamic**: Java is considered to be more dynamic than C or C++ since it is designed to adapt to an evolving environment. Java programs can carry extensive amount of run-time information that can be used to verify and resolve accesses to objects on run-time.

Characterstics of JAVA

Java has many characteristics that have contributed to its popularity:

• **Platform independence** - Many languages are compatible with only one platform. Java was specifically designed so that it would run on any computer, regardless if it was running Windows, Linux, Mac, Unix or any of the other operating systems.

• **Simple and easy to use** - Java's creators tried to design it so code could be written efficiently and easily.

• **Multi-functional** - Java can produce many applications from command-line programs to applets to Swing windows (basically, sophisticated graphical user interfaces).

Java does have some drawbacks. Since it has automated garbage collection, it can tend to use more memory than other similar languages. There are often implementation differences on different platforms, which have led to Java being described as a "write once, test everywhere" system. Lastly, since it uses an abstract "virtual machine", a generic Java program doesn't have access to the Native API's on a system directly. None of these issues are fatal, but it can mean that Java isn't an appropriate choice for a particular piece of software.

Chapter-2

THE JAVA PLATFORM

One thing that distinguished Java from some other languages is its ability to run the same compiled code across multiple operating systems. In other languages, the source code (code that is written by the programmer), is compiled by a compiler into an executable file. This file is in machine language, and is intended for a single operating system/processor combination, so the programmer would have to re-compile the program seperately for each new operating system/processor combination. Java is different in that it does not compile the code directly into machine language code. Compilation creates bytecode out of the source code. Bytecode generally looks something like this:

a7 f4 73 5a 1b 92 7d

When the code is run by the user, it is processed by something called the Java Virtual Machine(JVM). The JVM is essentially an interpreter for the bytecode. It goes through the bytecode and runs it. There are different versions of the JVM that are compatible with each OS and can run the same code. There is virtually no difference for the end-user, but this makes it a lot easier for programmers doing software development.

Java and Open Source:-

➢ In 2006 Sun started to make Java available under the GNU General Public License(GPL). Oracle continues this project called OpenJDK.

Java Virtual machine :-

- The Java virtual machine (JVM) is a software implementation of a computer that executes programs like a real machine.
- The Java virtual machine is written specifically for a specific operating system, e.g. for Linux a special implementation is required as well as for Windows.
- Java programs are compiled by the Java compiler into bytecode. The Java virtual machine interprets this bytecode and executes the Java program.

Chapter-3

OBJECT AND CLASSES IN JAVA

Java is an Object-Oriented Language. As a language that has the Object-Oriented feature, Java supports the following fundamental concepts:

- Polymorphism
- Inheritance
- Encapsulation
- Abstraction
- Classes
- Objects
- Instance
- Method
- Message Parsing

We will look into the concepts - Classes and Objects

➢ Object - Objects have states and behaviors. Example: A dog has states - color, name, breed as well as behaviors – wagging the tail, barking, eating. An object is an instance of a class.

➢ Class - A class can be defined as a template/blueprint that describes the behavior/state that the object of its type support.

Objects in Java

Def.: An object is an instance of a class. The object is the real element which has data and can perform actions. Each object is created based on the class definition.

Let us now look deep into what are objects. If we consider the real-world, we can find many objects around us, cars, dogs, humans, etc. All these objects have a state and a behavior.

If we consider a dog, then its state is - name, breed, color, and the behavior is - barking, wagging the tail, running.

If you compare the software object with a real-world object, they have very similar characteristics.

Following is a sample of a class:-

```
public class Dog
{
String breed;
int ageC
String color;
void barking(){
}
void hungry(){
}
void sleeping(){
}
}
```

A class can contain any of the following variable types:-

- **Local variables**: Variables defined inside methods, constructors or blocks are called local variables. The variable will be declared and initialized within the method and the variable will be destroyed when the method has completed.
- **Instance variables**: Instance variables are variables within a class but outside any method. These variables are initialized when the class is instantiated. Instance variables can be accessed from inside any method, constructor or blocks of that particular class.
- **Class variables**: Class variables are variables declared within a class, outside any method, with the static keyword

Constructor in Java

A constructor initializes an object when it is created. It has the same name as its class and is syntactically similar to a method. However, constructors have no explicit return type. Typically, you will use a constructor to give initial values to the instance variables defined by the class, or to perform any other startup procedures required to create a fully formed object.

All classes have constructors, whether you define one or not, because Java automatically provides a default constructor that initializes all member variables to zero. However, once you define your own constructor, the default constructor is no longer used

5.4. Packages in Java

Java groups classes into functional packages.

Packages are typically used to group classes into logical units. For example all graphical views of an application might be placed in the same package called com.vogella.webapplication.views.

It is common practice to use the reverse domain name of the company as top level package.

For example the company might own the domain, vogella.com and in this example the Java packages of this company starts with com.vogella.

Other main reason for the usage of packages is to avoid name collisions of classes. A name collision occurs if two programmers give the same fully qualified name to a class. The fully qualified name of a class in Java consists out of the package name followed by a dot (.) and the class name.

Without packages, a programmer may create a Java class called Test. Another programmer may create a class with the same name. With the usage of packages you can tell the system which class to call. For example if the first programmer puts the Test class into package report and the second programmer puts his class into package xmlreader you can distinguish between these classes by using the fully qualified name, e.g. xmlreader.Test or report.Test.

In simple words, it is a way of categorizing the classes and interfaces. When developing applications in Java, hundreds of classes and interfaces will be written, therefore categorizing these classes is a must as well as makes life much easier.

Example :

Here, age is a local variable. This is defined inside pupAge() method and its scope is limited to only this method.

```
public class Test
{
public void pupAge()
{
int age = 0;
age = age + 7;
System.out.println("Puppy age is : " + age);
}
public static void main(String args[])
{
Test test = new Test();
test.pupAge();
}
```

} Following example uses age without initializing it, so it would give an error at the time of compilation.

```
public class Test
{
public void pupAge()
{
int age;
age = age + 7;
System.out.println("Puppy age is : " + age);
}
public static void main(String args[])
{
Test test = new Test();
test.pupAge();
}
}
```

4.2. Instance Variables

• Instance variables are declared in a class, but outside a method, constructor or any block.

• When a space is allocated for an object in the heap, a slot for each instance variable value is created.

Chapter-5

BASIC DATATYPE OF JAVA

Variables are nothing but reserved memory locations to store values. This means that when you create a variable you reserve some space in the memory.
Based on the data type of a variable, the operating system allocates memory and decides what can be stored in the reserved memory. Therefore, by assigning different datatypes to variables, you can store integers, decimals, or characters in these variables.
There are two data types available in Java:

- Primitive Datatypes
- Reference/Object Datatypes

Primitive Datatypes

There are eight primitive datatypes supported by Java. Primitive datatypes are predefined by the language and named by a keyword. Let us now look into the eight primitive data types in detail.

Byte:

➢ Byte data type is an 8-bit signed two's complement integer
➢ Minimum value is -128(-2^7)
➢ Maximum value is 127 (inclusive)(2^7 -1)
➢ Default value is 0
➢ Byte datatype is used to save space in large arrays, mainly in place of integers, since a byte is four times smaller than an integer
➢ Example: byte a = 100 , byte b = -50

Short:

➢ Short datatype is a 16-bit signed two's complement integer
➢ Minimum value is -32,768(-2^15)
➢ Maximum value is 32,767 (inclusive) (2^15 -1)
➢ Short datatype can also be used to save memory as byte data type. A short is 2 times smaller than an integer
➢ Default value is 0
➢ Example: short s = 10000, short r = -20000

int:

➢ Int datatype is a 32-bit signed two's complement integer
➢ Minimum value is - 2,147,483,648(-2^31)

Reference Datatypes

• Reference variables are created using defined constructors of the classes. They are used to access objects. These variables are declared to be of a specific type that cannot be changed. For example, Employee, Puppy, etc.
• Class objects and various type of array variables come under reference datatype.
• Default value of any reference variable is nul.
• A reference variable can be used to refer any object of the declared type or any compatible type.
• Example: Animal animal = new Animal("giraffe");

Java Literals

➢ A literal is a source code representation of a fixed value. They are represented directly in the code without any computation.
➢ Literals can be assigned to any primitive type variable. For example:

```
byte a = 68;
char a = 'A'
```

➢ byte, int, long, and short can be expressed in decimal(base 10), hexadecimal(base 16) or octal(base 8) number systems as well.
➢ Prefix 0 is used to indicate octal, and prefix 0x indicates hexadecimal when using these number systems for literals. For example:

```
int decimal = 100;
int octal = 0144;
int hexa = 0x64;
```

➢ String literals in Java are specified like they are in most other languages by enclosing a sequence of characters between a pair of double quotes. Examples of string literals are:

```
"Hello World"
"two\nlines"
"\"This is in quotes\""
```

➢ String and char types of literals can contain any Unicode characters. For example:

```
char a = '\u0001';
String a = "\u0001";
```

The Bitwise Operators

Java defines several bitwise operators, which can be applied to the integer types, long, int, short, char, and byte.
Bitwise operator works on bits and performs bit-by-bit operation. Assume if a = 60 and b = 13; now in binary format they will be as follows:
a = 0011 1100
b = 0000 1101
---
a&b = 0000 1100
a|b = 0011 110
a^b = 0011 0001
~a = 1100 0011

The following table lists the bitwise operators:
Assume integer variable A holds 60 and variable B holds 13 then:

Sr.No.	Operators and Description
1	**& (bitwise and)** Binary AND Operator copies a bit to the result if it exists in both operands. Example: (A & B) will give 12 which is 0000 1100
2	**| (bitwise or)** Binary OR Operator copies a bit if it exists in either operand. Example: (A | B) will give 61 which is 0011 1101
3	**^ (bitwise XOR)** Binary XOR Operator copies the bit if it is set in one operand but not both. Example: (A ^ B) will give 49 which is 0011 0001
4	**~ (bitwise compliment)** Binary Ones Complement Operator is unary and has the effect of 'flipping' bits. Example: (~A) will give -61 which is 1100 0011 in 2's complement form due to a signed binary number
5	**<< (left shift)** Binary Left Shift Operator. The left operands value is moved left by the number of bits specified by the right operand. Example: A << 2 will give 240 which is 1111 0000
6	**>> (right shift)** Binary Right Shift Operator. The left operands value is moved right by the number of bits specified by the right operand. Example: A >> 2 will give 15 which is 1111

The Relational Operators

There are following relational operators supported by Java language.
Assume variable A holds 10 and variable B holds 20, then:

Sr.No.	Operators and Description
1.	**== (equal to)** Checks if the values of two operands are equal or not, if yes then condition becomes true. Example: (A == B) is not true.
2.	**!= (not equal to)** Checks if the values of two operands are equal or not, if values are not equal then condition becomes true. Example: (A != B) is true.
3.	**> (greater than)** Checks if the value of left operand is greater than the value of right operand, if yes then condition becomes true. Example: (A > B) is not true
4.	**< (less than)** Checks if the value of left operand is less than the value of right operand, if yes then condition becomes true. Example: (A < B) is true
5.	**>= (greater than or equal to)** Checks if the value of left operand is greater than or equal to the value of right operand, if yes then condition becomes true. Example: (A >= B) is not true
6.	**<= (less than or equal to)** Checks if the value of left operand is less than or equal to the value of right operand, if yes then condition becomes true. Example: (A <= B) is true.

N2R TECHNOLOGIES
n2rtechnologies@gmail.com
+91 7276437476

Reg No.: 1852300312699696 **Date: 26/05/2018**

To,

The HOD[CSE],

TGPCET, Nagpur

Subject: Regarding joining of "Internship Programme" by the students of your college.

Respected Sir/Madam,

We are pleased to inform you that the Ms. Manasvi R. Thakare of BE final year students from Computer Science & Engineering department has been selected as an Software Development trainee in our company.

Duration of internship training is for 1 month from 18th May 2018 to 18th June 2018.

Yours Truly,

Mrs. Pooja G. Pimpalshende
Director
N 2 R Technologies

N 2 R Technologies Nagpur

N2R TECHNOLOGIES
n2rtechnologies@gmail.com
+91 7276437476

Reg No.: 1852300312699696 **Date: 26/05/2018**

To,

The HOD[CSE],

TGPCET, Nagpur

Subject: Regarding joining of "Internship Programme" by the students of your college.

Respected Sir/Madam,

We are pleased to inform you that the Ms. Avanti Jadhao of BE final year students from Computer Science & Engineering department has been selected as an Software Development trainee in our company.

Duration of internship training is for 1 month from 18th May 2018 to 18th June 2018.

Yours Truly,

Mrs. Pooja G. Pimpalshende
Director
N 2 R Technologies

N 2 R Technologies Nagpur

Tulsiramji Gaikwad-Patil College of Engineering and Technology
Wardha Road, Nagpur-441 108
NAAC Accredited

Department of Electronics & Communication Engineering

To

Date:05/11/2017

The Principal,

Tulsiramji Gaikwad-Patil College of Engineering & Technology.

Mohagaon, Wardha Rd, Nagpur.

Subject: Application for Attending a Training on GPON Technology at ElectroTech Engineer Services Pvt.Ltd.

Respected Sir,

I Sandeep Thakre, working as a Assistant professor in Electronics & Communication Engg Department. I just came to know about a great training on **GPON Technology** and it is most relevant for me. Actually, it is 25days long activity based training seminar for the teachers. As a teacher of Electronics & Communication Engg in your college and for progress in this field as my passion asking me to don't miss the opportunity. I think this for very first time event of this nature in our city where we lack the expertise in this area.

I request you to please allow me for training for 25 days and provide a replacement of teacher for my class during this time period. I will be thankful to you.

Sincerely,

Mr.Sandeep Thakre

Assistant Professor,

Electronics and Communication Engineering

Contact no: 9552002194

OK

05/11/2017

Principal
Tulsiramji Gaikwad-Patil College of Engineering & Technology
Nagpur

SEAL

Department of ECE

ETE Services Pvt. Ltd., Nagpur

Electro-Tech Engineer Services

CIN:- U74999MH2018PTC310643

Date: 12/11/2017

To
The Head,ECE
Gaikwad-Patil Group Of Institutions.

Subject: Letter of Traning Acceptance.

Dear Sir,

We are pleased to offer you an traning program on GPON Technology to your faculty members at our organization. The duration of the training program is for 25 days (04/12/2017 to 29/12/2017)

We appreciate your interest in our organization.

Your Sincerely,

Head of Human Resources

Electro Tech Engineer Service Pvt.Ltd

ETE SERVICES PVT. LTD. ETES NAGPUR

ETE Services Pvt. Ltd., Nagpur

Electro-Tech Engineer Services

CIN:- U74999MH2018PTC310643

CERTIFICATE

THIS IS CERTIFY THAT MR.SANDEEP THAKRE, ASSISTANT PROF. AT TULSIRAMJI GAIKWAD PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR IN ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT ATTENDED THE TRAINING OF GPON TECHNOLOGY FOR 25 DAYS (TWENTY FIVE DAYS) FROM 04/12/2017 TO 29/12/2017 DURING THE ABOVE MENTIONED PERIOD HIS CONDUCT AND PERFORMANCE WAS FOUND TO BE SATISFACTORY

DATE: 29/12/2017

PLACE: NAGPUR

YOURS FAITHFULLY

ELECTRO TECH ENGINEER SERVICE PVT.LTD

ETE SERVICES PVT. LTD. ETES NAGPUR

Tulsiramji Gaikwad-Patil College of Engineering and Technology
Wardha Road, Nagpur-441 108
NAAC Accredited

Department of Electronics & Communication Engineering

Application for Internship Training

To

The HoD

Electronics & Communication Engg ,

Nagpur.

Subject: Application for the issue the permission letter for Internship Training

Company Name: MIT INFOTECH & SOLUTION

Applicant Name: Tanu Majumdar (7th) Rakshanda Deep (7th sem)
Sneha Udam (7th) Vaishali Mahadhule (5th sem)

Respected Sir,

I am the students of 7th & 5th Semester Electronics & Communication Engineering Department of Tulsiramji Gaikwad Patil College of Engineering & Technology Nagpur, request you to allow me to do internship. The duration of training is 4/12/17 to 20/12/17

So kindly permit me as I have been thoroughly preparing industrial working culture under the guidance of experienced employee and gaining practical knowledge will develop my professional level with effectiveness.

Thanking You.

HOD
HOD
Department of Electronics & Comm.
Tulsiramji Gaikwad - Patil College
of Engineering & Technology, Nagpur

Vidarbha Bahu-uddeshiya Shikshan Sanstha's NAAC Accredited with 'B' grade
TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology
Mohgaon, Wardha Road, Nagpur - 441 108 Tel: 07103-645410 Mob: 09822966173
Approved by AICTE, New Delhi, Govt. of Maharshtra & Affiliated to RTM Nagpur University
E-mail: principal@tgpcet.com Website: www.tgpcet.com
An ISO 9001:2008 Certified Institution

GAIKWAD-PATIL
GROUP OF INSTITUTIONS
Ojaswini Complex
Gayatri Nagar, IT Park Road
Nagpur - 440 022
Tel: 0712 664 8252
Fax: 0712 224 0656
E-mail: vidarbhabuss@yahoo.co.in

Ref. No-/SIP/TGPCET/2017-18/ 42

Date: 03/11/2017

To,
Mr. Dinesh Tundalwar,
HR Manager,
MIT-Solution,Nagpur.

Subject: Letter regarding Summer Internship Program in your organization.

Respected Sir,

Warm greetings from **GAIKWAD-PATIL GROUP OF INSTITUTIONS**

GAIKWAD-PATIL GROUP OF INSTITUTIONS is one of the most prestigious educational groups in Nagpur. Tulsiramji Gaikwad-Patil College of Engineering & Technology (TGPCET) offers a range of disciplines in Engineering & Technology and Management.

As a professional educational group involved in producing engineers, it is imperative for us that our students are industry relevant and ready and therefore we would like to request you to allow our following Student of 7th & 5th **Semester Electronics & Communication Engineering**, from **Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur** in your esteemed organization so that it will help us as well as to students to understand what an industry such as yours needs from a fresh engineering graduate. We are hoping to get our students work under your guidance. We will take the responsibility of Students Behavior and assure you that they will not break any regulations of your esteemed company.

1. **Mr.Tanu Majumdar**
2. **Ms.Rakshanda Deep**
3. **Ms.Sneha Udan**
4. **Ms.Vaishali Mahdule**

Regards,

HoD,ECE
GAIKWAD-PATIL GROUP OF INSTITUTIONS

HOD
Department of Electronics & Co
Tulsiramji Gaikwad - Patil Colle
of Engineering & Technology, Nagpu

SEAL

MIT INFOTECH & Solution

Mahakaleshwar Enclave Gurudev Nagar
Near Rajiv Gandhi Sabhagruh
Nagpur 440009
Contact :9764801276,9172782594
E-mail :Mit.infotech.solution@gmail.com

Date: 10/11/2017

To
The Head,ECE
Gaikwad-Patil Group Of Institutions.

Subject: Letter of Internship Acceptance.

Dear Sir,

We are pleased to offer you an internship program to your following students for Industrial Robotics and Transformer at our organization. The duration of the internship program is for 15 days (04/12/2017 to 20/12/2017)

We appreciate your interest in our organization.

Your Sincerely,

Head of Human Resources

MIT-Solution.

MIT INFOTECH & Solution

MIT INFOTECH & Solution

Mahakaleshwar Enclave Gurudev Nagar
Near Rajiv Gandhi Sabhagruh
Nagpur 440009
Contact :9764801276,9172782594
E-mail :Mit.infotech.solution@gmail.com

CERTIFICATE

THIS IS CERTIFY THAT MR/MISS. **RAKSHANDA DEEP** OF TULSIRAMJI GAIKWAD PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR IN ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT ATTENDED THE TRAINING OF EMBEDDED SYSTEM FOR 15 DAYS (FIFTEEN DAYS) FROM 04/12/2017 TO 20/12/2017 DURING THE ABOVE MENTIONED PERIOD HIS/HER CONDUCT AND PERFORMANCE WAS FOUND TO BE SATISFACTORY

DATE: 20/12/2017

PLACE: NAGPUR

YOURS FAITHFULLY

MIT INFOTECH & SOLUTION

MIT INFOTECH & Solution

MIT INFOTECH & Solution

Mahakaleshwar Enclave Gurudev Nagar
Near Rajiv Gandhi Sabhagruh
Nagpur 440009
Contact :9764801276,9172782594
E-mail :Mit.infotech.solution@gmail.com

CERTIFICATE

THIS IS CERTIFY THAT MR/MISS. **SNEHA UDAN** OF TULSIRAMJI GAIKWAD PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR IN ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT ATTENDED THE TRAINING OF EMBEDDED SYSTEM FOR 15 DAYS (FIFTEEN DAYS) FROM 04/12/2017 TO 20/12/2017 DURING THE ABOVE MENTIONED PERIOD HIS/HER CONDUCT AND PERFORMANCE WAS FOUND TO BE SATISFACTORY

DATE: 20/12/2017

PLACE: NAGPUR

YOURS FAITHFULLY

MIT INFOTECH & SOLUTION

MIT INFOTECH & Solution

MIT INFOTECH & Solution

Mahakaleshwar Enclave Gurudev Nagar
Near Rajiv Gandhi Sabhagruh
Nagpur 440009
Contact :9764801276,9172782594
E-mail :Mit.infotech.solution@gmail.com

CERTIFICATE

THIS IS CERTIFY THAT MR/MISS. TANU MAJUMDAR OF TULSIRAMJI GAIKWAD PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR IN ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT ATTENDED THE TRAINING OF EMBEDDED SYSTEM FOR 15 DAYS (FIFTEEN DAYS) FROM 04/12/2017 TO 20/12/2017 DURING THE ABOVE MENTIONED PERIOD HIS/HER CONDUCT AND PERFORMANCE WAS FOUND TO BE SATISFACTORY

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Near Rajiv Gandhi Sabhagruh
Nagpur 440009
Contact :9764801276,9172782594
E-mail :Mit.infotech.solution@gmail.com

CERTIFICATE

THIS IS CERTIFY THAT MR/MISS. VAISHALI MAHADULE OF TULSIRAMJI GAIKWAD PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR IN ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT ATTENDED THE TRAINING OF EMBEDDED SYSTEM FOR 15 DAYS (FIFTEEN DAYS) FROM 04/12/2017 TO 20/12/2017 DURING THE ABOVE MENTIONED PERIOD HIS/HER CONDUCT AND PERFORMANCE WAS FOUND TO BE SATISFACTORY

DATE: 20/12/2017

PLACE: NAGPUR

YOURS FAITHFULLY

MIT INFOTECH & SOLUTION

MIT INFOTECH & Solution

SUMMER INTERNSHIP

This SUMMR INTERNSHIP project report is submitted to

Tulsiramji Gaikwad-Patil College of Engineering and Technology.

(Affiliated to Rashtrasant Tukdoji Maharaj Nagpur University)

In partial fulfilment of the requirement

For the SUMMER INTERNSHIP PROGRAM

By

TANU MAZUMDAR

RAKSHANDA DEEP

SNEHA UDAN

VAISHALI MAHADULE

Under the guidance of

Sr. Company Manager

(MIT-SOLUTION & INFOTECH.)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Tulsiramji Gaikwad-Patil college of Engineering AND Technology.

(Affiliated to Rashtrasant Tukdoji Maharaj Nagpur University)

NAGPUR-440009

2017-2018

CERTIFICATE OF APPROVAL

Certified that the project report entitled "**SUMMER INTERNSHIP**" has been successfully completed by **Mr. TANU MAZUMDAR, Ms.RAKSHANDA DEEP ,Ms.SNEHA UDAN, Ms.VAISHALI MAHADULE** under the guidance of **Mr. D.TUNDALWAR (guide)**in MANUFACTURING DEPARTMENT of **MIT –SOLUTION & INFOTECH.**

Mr. D.TUNDALWAR (guide)

Sr. Company Manager

(MIT-SOLUTION & INFOTECH.)

MIT INFOTECH & Solution

HoD,ECE

TGPCET

HOD
Department of Electronics & Comm.
Tulsiramji Gaikwad - Patil College
of Engineering & Technology, Nagpur.

DECLARATION

I/WE certify that

a. The work contained in this project has been done by me under the guidance of my supervisor.
b. The work has not been submitted to any other institute for any degree or diploma.
c. I have followed the guidelines provided by the company in preparing the project report.
d. I have conformed to the norms and guideline given in the Ethical Code of conduct of the company.
e. Whenever I have used material (data, theoretical analysis, figures and text) from other sources, I have given due credit to them by citing them in the text of the report and giving their details in the references. Further, I have taken permission from the copyright owners of the sources, whenever necessary

TANU MAZUMDAR
(Signature)

RAKSHANDA DEEP
(Signature)

SNEHA UDAN
(Signature)

VAISHALI MAHADHULE
(Signature)

ACKNOWLEDGEMENT

I express my sincere and deep sense of gratitude to our guide **Mr. D.TUNDALWAR (guide)** for his invaluable and affectionate encouragement through the project work. The work was complicated and complex. But her availability, timely discussion, guidance with moral support and constant inspiration made the work successful. Her in-depth knowledge and patience saw us through many unforeseen hurdles. She has generously helped and constantly supervised us throughout the work. I also express my sincere gratitude to **Mr. DIRECTOR** for his invaluable and helpful guidance and support.

I wish to express my profound thanks to **PROF. ROHINI POCHI Electronics and communication Engineering** for his kind assistance. I am also thankful to project coordinator of electronics and communication engineering

I also thanks **Dr G.K AWARI**, Principal, **TULSIRAMJI GAIKWAD-PATIL college of Engineering and Technology, Nagpur**, who helped in availing the required facilities for the completion of project.

Above all, I wish to thank the **Department of Electronics and Communication Engineering, TULSIRAMJI GAIKWAD-PATIL College of Engineering and Technology, Nagpur** and the people in the department and the institute for providing the resources for carrying out this project.

CONTENTS

INTRODUCTION OF INDUSTRIAL ROBOTICS

It is the three-phase system which has been adopted world over to generate, transmit and distribute electrical power. Therefore, to change the level of voltages in the system three phase transformers should be used.

Three number of identical single-phase transformers can be suitably connected for use in a three-phase system and such a three-phase transformer is called a bank of three phase transformer. Alternatively, a three-phase transformer can be constructed as a single unit.

Voltage transformers can also be used to supply power to three or higher phase connections, in addition to single phase connections. Such transformers which can supply voltage to three or more phases are also known as Poly Phase transformers.

These transformers can be used to generate or supply power on large scales like for industrial or commercial uses. These have many advantages over single phase transformers as a three-phase transformer provides a more economical approach by using less material since the three cores can be replaced by a single core.

Moreover, the constant power transferring property of a balanced load improves the vibrations and fluctuations.

The three phases carry equal current which tends to cancel each other, due to this reason the neutral wire can be shortened and all the three phase wires are of equal length creating a balanced load system

CLASSIFICATION OF ROBOTICS TRANSFORMER

Types of Transformers

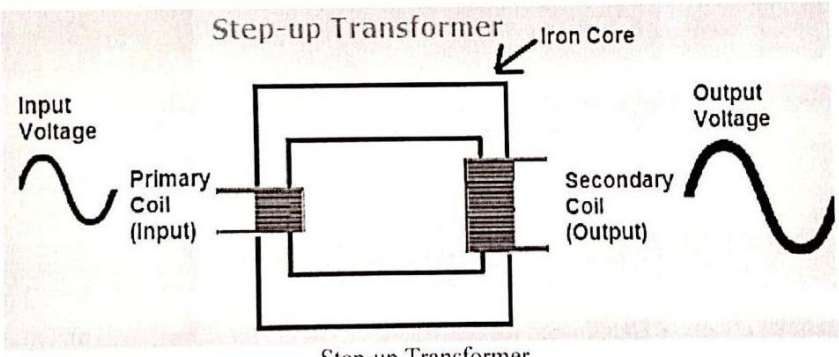
There are several transformer types used in the electrical power system for different purposes, like in power generation, distribution and transmission and utilization of electrical power. The transformers are classified based on voltage levels, Core medium used, winding arrangements, use and installation place, etc. Here we discuss different types of transformers are the step up and step-down Transformer, Distribution Transformer, Potential Transformer, Power Transformer, 1-ϕ and 3-ϕ transformer, Auto transformer, etc.

Transformers Based on Voltage Levels

These are the most commonly used transformer types for all the applications. Depends upon the voltage ratios from primary to secondary windings, the transformers are classified as step-up and step-down transformers.

Step-Up Transformer

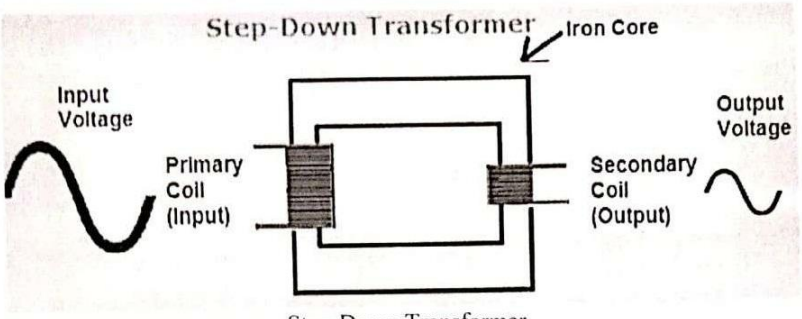
As the name states that, the secondary voltage is stepped up with a ratio compared to primary voltage. This can be achieved by increasing the number of windings in the secondary than the primary windings as shown in the figure. In power plant, this transformer is used as connecting transformer of the generator to the grid.



Step-up Transformer

Step-Down Transformer

It used to step down the voltage level from lower to higher level at secondary side as shown below so that it is called as a step-down transformer. The winding turns more on the primary side than the secondary side.



Step-Down Transformer

In distribution networks, the step-down transformer is commonly used to convert the high grid voltage to low voltage that can be used for home appliances.

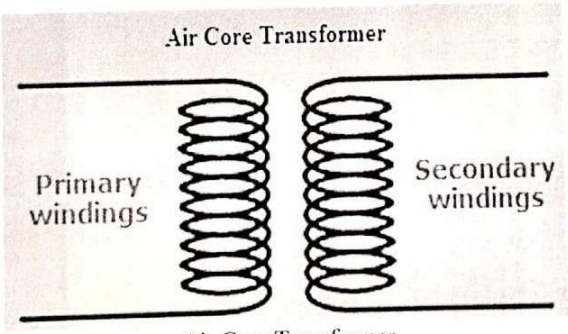
Transformer Based on the Core Medium Used

Based on the medium placed between the primary and secondary winding the transformers are classified as Air core and Iron core

Air Core Transformer

Both the primary and secondary windings are wound on a non-magnetic strip where the flux linkage between primary and secondary windings is through the air.

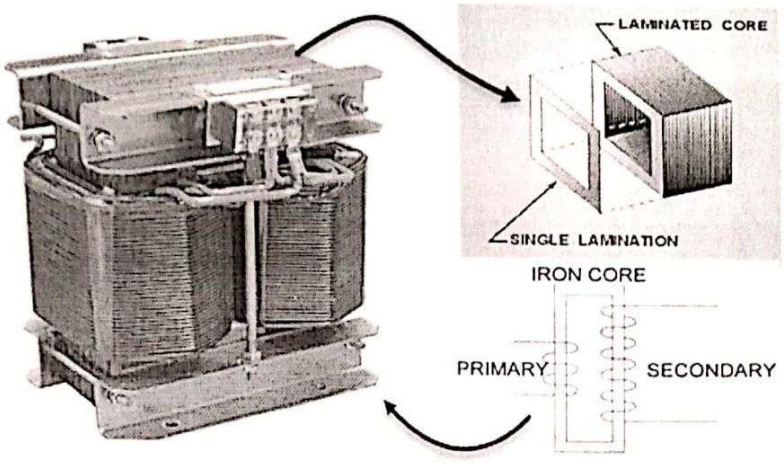
Compared to iron core the mutual inductance is less in air core, i.e. the reluctance offered to the generated flux is high in the air medium. But the hysteresis and eddy current losses are completely eliminated in air-core type transformer.



Air Core Transformer

Iron Core Transformer

Both the primary and secondary windings are wound on multiple iron plate bunch which provide a perfect linkage path to the generated flux. It offers less reluctance to the linkage flux due to the conductive and magnetic property of the iron. These are widely used transformers in which the efficiency is high compared to the air core type transformer.

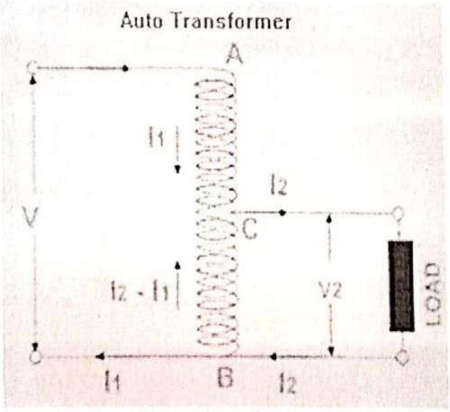


Iron Core Transformer

Transformers Based on Winding Arrangement

Autotransformer

standard transformers have primary and secondary windings placed in two different directions, but in autotransformer windings, the primary and the secondary windings are connected to each other in series both physically and magnetically as shown in the figure below.



Auto Transformer

On a single common coil which forms both primary and secondary winding in which voltage is varied according to the position of secondary tapping on the body of the coil windings.

Vidarbha Bahu-uddeshiya Shikshan Sanstha's **NAAC Accredited with 'B' grade**

TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology

Mohgaon, Wardha Road, Nagpur - 441 108 **Tel:** 07103-645410 **Mob:** 09922966173
Approved by AICTE, New Delhi, Govt. of Maharshtra & Affiliated to RTM Nagpur University
E-mail: principal@tgpcet.com **Website:** www.tgpcet.com
An ISO 9001:2008 Certified Institution

GAIKWAD-PATIL
GROUP OF INSTITUTIONS

Ojaswini Complex
Gayatri Nagar, IT Park Road
Nagpur - 440 022
Tel: 0712 664 8252
Fax: 0712 224 0656
E-mail: vidarbhabuss@yahoo.co.in

Ref: TGPCET/EE/2017-18/64

Date:20/9/2017

To,
The Manager,
J.P.Electricals Pvt Ltd.
M.I.D.C, Higna Nagpur

Subject – Application for Industrial Visit of Electrical Engineering on 28th September,2017

Respected Sir/Madam,

Warm Regards from Tulsiramji Gaikwad Patil College of Engineering and Technology (TGPCET).

TGPCET is one of the most promising and upcoming Engineering Institutions in Vidarbha region. The college is a part of Gaikwad-Patil Group of Institutions which caters to cultivating students in various fields such as Engineering, Architecture, etc. It comes under the umbrella of Rashtrasant Tukadoji Maharaj Nagpur University and is affiliated to AICTE.

As a professional education institute involved in producing engineers, it is imperative for us that our students are industry relevant and ready. As such we feel the urge for high amount of student interaction with the industrial setup. Hence, we encourage our students to maximize their industry interaction in ways such as industrial visits, case studies and projects. This helps them to get practical experience of theoretical knowledge that they acquire in their curriculum.

Our Students from Electrical Engineering eager to visit .The students will be accompanied along with faculty member during the duration of their study. We also hope that this can be a beginning of a long lasting, professionally satisfying and mutually beneficial relationship between our organizations.

Regards and Best wishes,

TULSIRAMJI GAIKWAD-PATIL COLLEGE OF ENGG. & TECH. SEAL

HOD (EE)

HOD
Department of Electrical Engineering
Tulsiramji Gaikwad Patil College of
Engineering & Technology, Nagpur

TGPCET

Radharaman Shaha<hod.ee@tgpcet.com>

Final result.

4 messages

HR JP Electrical <hr@jp.electrical.com> Fri, 22,JULY, 2017 at 6:36 PM
To: **Radharaman Shaha<hod.ee@tgpcet.com**

Greetings authority,

We are glad to inform you that your application for request of industrial Visit has been accepted by the organization, and you have been selected for the Industrial visit in our company.
This e-mail is regarding your Industrial Visist application as on 28/07/2017.
As you know it may be a very bustling time, we advise you to be mentally and physically equipped, and of course, you can get along with our expectations. You will get compensation from the company for the internship period thereof as discussed.
Note: This offer holds valid for two weeks from today's date. If you are failing to join us in the expected period, this opportunity will be invalid and considered as oblivion and unoccupied.

Tulsiramji Gaikwad-Patil College of Engineering and Technology

Wardha Road, Nagpur-441 108

NAAC Accredited

Department of Electrical Engineering

Session: 2017-18

Attendance of Industrial Visit

J.P Electrical, Hingana, Nagpur **Date: 28/09/2017**

Sr.No	Name of Student	Signature
1	AKSHATA RAJENDRA FULMALI	
2	AMITA RAVINDRA UKANDE	
3	ANKITA GANGADHAR SHENDE	
4	APARNA ANIMESH GHOSH	
5	BHARAT NARAYAN BHANDARI	
6	DHANSHRI RAJABHAU HIRULKAR	
7	DIKSHA GAUTAM DORLIKAR	
8	DILASHA SANDEEP KOTANGALE	
9	DIMPAL DEVIDAS CHOPDE	
10	DIVYA SANTOSH BARBATE	
11	EKTA VIJAY PANTAWANE	
12	AKASH SANJAY BAGADE	
13	ASHISH HIRALAL DOYE	
14	DHAMMDEEP DHANRAJ DETHE	
15	GUNWANT SUBHASH DESHKAR	
16	HIMANSHU RAJENDRA MUKWANE	
17	KAMLESH DHANIRAM BHAJIPALE	
18	KAMLESH NILKANTH KARPATE	
19	PAWAN ANIL CHUTE	
20	PRATIKSINGH ANUPAM RAGHAV	
21	RAJAT MANOHARLAL CHOUDHARY	

NAAC ACCREDITED

Tulsiramji Gaikwad-Patil College of Engineering & Technology

Wardha Road, Nagpur-441 108

Department of Electrical Engineering

Report of Mapping Test conducted for the visit organized at J.P Electricals, Hingana, Nagpur

Date of Test:-28.09.2017

Aim: To conduct a mapping test on Visit to J.P Electrical, Hingana, Nagpur for understanding the machines and its internal structure on "28th September 2017".

Objective:

1. To give the students basic concepts of machine design.
2. To impart students about specifications and construction of machines.

Methodology:

1. The students are given induction about the visit. They were briefed about the objective of organizing such type of visits.
2. Students from third year of the Electrical Engineering Branch were selected for the visit.
3. Students were asked knowledge based questions on to know about the visit by searching it in the media. They were also asked to search the answer why such events are arranged by the organizing body.
4. Multiple Choice Questions based on the visit is prepared to check whether the visit was fruitful or not.

Outcome:

1. It is observed by the faculty co-ordinator that the students utilized the travel time to reach the destination in searching the details of the event and know about the history of the place.
2. Students curiously went to every project, learnt the concept of the project and also asked few questions to the projectees present with their projects.
3. The students were proud to know that our country is in the forefront to use the technology.
4. Complex engineering problem solutions were also one of the outcomes of the guest lecture.

NAAC ACCREDITED

Tulsiramji Gaikwad-Patil College of Engineering & Technology

Wardha Road, Nagpur-441 108

Department of Electrical Engineering

Mapping of Industrial Visit with PO:

This Industrial Visit helped students to learn about

1) Engineering Knowledge
2) Design/ development of solutions.
3) Conduct investigation of complex problems
4) Modern tool usage
5) The engineer and society
6) Individual and team work
7) Lifelong learning

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
3		2	3		3			3		3	2

Conclusion:

The educational tour concluded with vote of thanks. One of the students proposed a vote of thanks to all delegates, Organizing and Technical Committees for smooth conduct and huge success of one day industrial visit organized at J.P Electrical, Hingna, Nagpur. The one day industrial visit was nicely and successfully managed by an active faculty member of the department Prof. Pratik Ghutke & Prof. Nikita Malwar.

Industrial Visit to J.P.Electricals, MIDC Hingna

Visit Co-ordinater

HoD,EE

HOD
Electrical Engineering
Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

Vidarbha Bahu-uddeshiya Shikshan Sanstha's NAAC Accredited with 'B' grade

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Tel: 0712 664 8252
Fax: 0712 224 0656
E-mail: vidarbhabuss@yahoo.co.in

TGPCET/EE/2017-2018/172

Date:13/2/2017

To,
The Manager,
Pench Hydro Electric,
Pench

Subject – Application for Industrial Visit of Electrical Engineering on 20th February,2017

Respected Sir/Madam,

Warm Regards from Tulsiramji Gaikwad Patil College of Engineering and Technology (TGPCET).

TGPCET is one of the most promising and upcoming Engineering Institutions in Vidarbha region. The college is a part of Gaikwad-Patil Group of Institutions which caters to cultivating students in various fields such as Engineering, Architecture, etc. It comes under the umbrella of Rashtrasant Tukadoji Maharaj Nagpur University and is affiliated to AICTE.

As a professional education institute involved in producing engineers, it is imperative for us that our students are industry relevant and ready. As such we feel the urge for high amount of student interaction with the industrial setup. Hence, we encourage our students to maximize their industry interaction in ways such as industrial visits, case studies and projects. This helps them to get practical experience of theoretical knowledge that they acquire in their curriculum.

Our Students from Electrical Engineering eager to visit .The students will be accompanied along with faculty member during the duration of their study. We also hope that this can be a beginning of a long lasting, professionally satisfying and mutually beneficial relationship between our organizations.

Regards and Best wishes,

HOD (EE)

TULSIRAMJI GAIKWAD-PATIL COLLEGE OF ENGG. & TECH. SEAL

HOD
Department of Electrical Engineering
Tulsiramji Gaikwad Patil College of Engineering & Technology, Nagpur

TGPCET

Radharaman Shaha<hod.ee@tgpcet.com>

Final result.

3 messages

HR <hr@phydro.com> SAT, 15,Feb,2017 at 8;36 PM
To: **Radharaman Shaha<hod.ee@tgpcet.com**

Greetings authority,

We are glad to inform you that your application for request of industrial Visit has been accepted by the organization, and you have been selected for the Industrial visit in our company.
This e-mail is regarding your Industrial Visist application as on 20/02/2017.
As you know it may be a very bustling time, we advise you to be mentally and physically equipped, and of course, you can get along with our expectations. You will get compensation from the company for the internship period thereof as discussed.

Tulsiramji Gaikwad-Patil College of Engineering and Technology

Wardha Road, Nagpur-441 108

NAAC Accredited

Department of Electrical Engineering

Session: 2016-17

Attendance of Industrial Visit

Pench Hydro Electric Project, Pench **Date: 20/02/2017**

Sr.No	Name of Student	Signature
1	ADARSHATA SHENDE	
2	DHANSHRI MARWADE	
3	HEENA BHAUYYAJI MESHRAM	
4	KALYANI M.WAGHMARE	
5	MADHURI B. KUBDE	
6	POOJA PUNAM CHANDEKAR	
7	RASHIKA BABURAO TIRPUDE	
8	SAGRIKA P. VILAYATKAR	
9	SHRUTIKA BANDU PETKAR	
10	TRUPTI R. UKEY	
11	ABHILASH ANIL THAKRE	
12	AJAY P. BAWANE	
13	AKASH RAMCHANDRA NIKHADE	
14	AMAR DEVIDAS SHRINATH	
15	ANIRUDDHA B. ROY	
16	DINESH HANSRAJ KUNDBHARE	
17	HARSHAL VILAS PATIL	
18	LAXMIKANT LOKHANDE	
19	MOHANISH ANIL WAKODE	
20	PARITOSH H. RENGE	
21	YOGESHWAR PACHARE	

NAAC ACCREDITED

Tulsiramji Gaikwad-Patil College of Engineering & Technology

Wardha Road, Nagpur-441 108

Department of Electrical Engineering

Report of Industry Visit at Pench Hydro Electrical Project, Pench.

Date:-20.02.2017

Aim: To conduct a mapping test on Visit of Pench Hydro Electrical Project, Pench on "20th February 2017".

Objective:

1. To give the students basic concepts of Hydro Electrical Project.
2. To impart students about specifications and construction of Hydro Electrical Project.

Methodology:

1. The students are given induction about the visit. They were briefed about the objective of organizing such type of visits.
2. Students from third & final year of the Electrical Engineering Branch were selected for the visit.
3. Students were asked knowledge based questions on to know about the visit by searching it in the media. They were also asked to search the answer why such events are arranged by the organizing body.
4. Multiple Choice Questions based on the visit is prepared to check whether the visit was fruitful or not.

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2. Students curiously went to every project, learnt the concept of the project and also asked few questions to the projectees present with their projects.
3. The students were proud to know that our country is in the forefront to use the technology.
4. Pench Hydroelectric Project (Totladoh Power Plant) is erected at the Pench river of Nagpur district in Maharashtra. The power project is commissioned in 1986 with an approved and installed capacity of 160 MW. The Power Station is completed in Totladoh Dam, which is a rockfill and concrete dam.The type of project is Major, since the capacity is greater than 25 MW. The status of power house is operational. The hydroelectric basin of power project is Godavari River. The power station is situated at the Western Hydroelectric region of the country.

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Tulsiramji Gaikwad-Patil College of Engineering & Technology

Wardha Road, Nagpur-441 108

Department of Electrical Engineering

Mapping of Industrial Visit with PO:

This Industrial Visit helped students to learn about

1) Engineering Knowledge
2) Design/ development of solutions.
3) Conduct investigation of complex problems
4) Modern tool usage
5) The engineer and society
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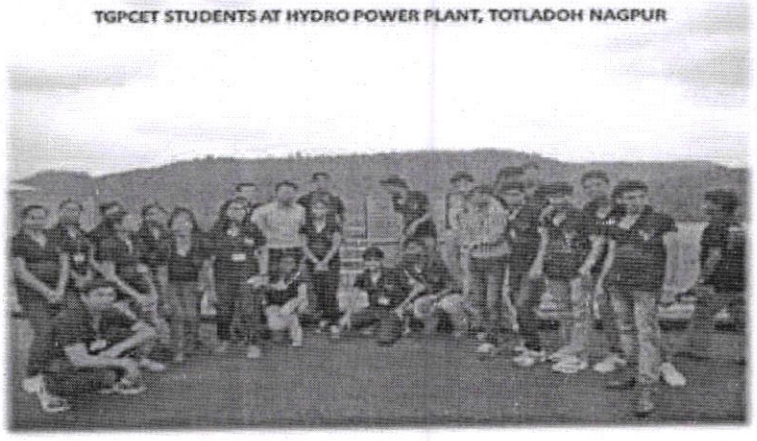
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
3	3		3		3	2		3		3	3

Conclusion:

The educational tour concluded with vote of thanks. One of the students proposed a vote of thanks to all delegates, Organizing and Technical Committees for smooth conduct and huge success of one day industrial visit organized at Hydro Power Plant, Totladoh, Nagpur. The one day industrial visit was nicely and successfully managed by an active faculty member of the department Prof. Ganesh Wakte & Prof. Ashvini Admane.

TGPCET STUDENTS AT HYDRO POWER PLANT, TOTLADOH NAGPUR



Visit Co-ordinater

HoD,EE

HOD
Electrical Engineering
Tulsiramji Gaikwad-Patil College of Engineering and Technology Nagpur