

1.3.3. Detail
1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship during the year (2022-23)

2022-2023					
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
B.Tech Biotechnology	018	Pharmaceutical Biotechnology	D018711(018)	2022-23	Anoushka Singh
B.Tech Biotechnology	018	Enzyme Technology	C018612(018)	2022-23	Ansh Yadav, Yashraj Singh Kaushik
B.Tech Biotechnology	018	Agriculture Technology	D018811(018)	2022-23	Barkha Goswami
B.Tech Biotechnology	018	Phytochemistry	D000711(018)	2022-23	N. Lavanya
B.Tech Biotechnology	018	Analytical Techniques	C018513(018)	2022-23	Nandita Bhoyar
B.Tech Biotechnology	018	Entrepreneurship and Startups Lab	C018521(018)	2022-23	Shahin Ansari
B.Tech Biotechnology	018	Microbial Technology	B018312(018)	2022-23	Twinkle Sahu
B.Tech Biotechnology	018	Analytical Techniques	C018513(018)	2022-23	Mansi Chandrakar
B.Tech Biotechnology	018	Cellular and Molecular Diagnostics	D000713(018)	2022-23	Joshna Lal
B.Tech Biotechnology	018	Plant and Animal Biotechnology	C018611(018)	2022-23	Rahul Thomas
B.Tech Biotechnology	018	Biofertilizers and Biopesticides	D018833(018)	2022-23	Ekta sahu
B.Tech Biotechnology	018	Oncology	D018733(018)	2022-23	Divya Sahu
B.Tech Biotechnology	018	Environmental Biotechnology	B018415(018)	2022-23	PANKAJ NISHAD
B.Tech Biotechnology	018	Phytochemistry	D000711(018)	2022-23	MANU SINHA
B.Tech Biotechnology	018	Food Processing Technology	C018613(018)	2022-23	AANCHAL TANDAN
B.Tech Biotechnology	018	Nano-Biotechnology	D018713(018)	2022-23	AASIYA BANO
B.Tech Biotechnology	018	Metabolic Engineering	C018512(018)	2022-23	YASHVANI MESHARAM
B.Tech Biotechnology	018	Medical Biotechnology	D000810(018)	2022-23	BHAWNA VAISHNAW
B.Tech Chemical Engineering	019	Bio Chemical Engineering	D019831(019)	2022-23	M Sai Jagan, Premalal Rupendra Singh, Krishan Kanhaiya Nishad, Ramesh Yadav
B.Tech Chemical Engineering	019	Fuel Technology	B019313(019)	2022-23	Nooruddin Kw, Sunil Kumar, Jyoti Yadav, Vishal
B.Tech Chemical Engineering	019	Organic Process Technology	B019413(019)	2022-23	Chhayank Kumar Sahu, Vaishali Aditya, Mukesh Dhruw, Gandhi Lal, Praditya Kumar
B.Tech Chemical Engineering	019	Heat Transfer Operation	B019412(019)	2022-23	Abdul Rauf, Sachin Soni, Khageshwar Prasad, Yashwant Rathore, Renuka Kashyap
B.Tech Chemical Engineering	019	Material and Energy Balance Computations	B019312(019)	2022-23	Rishi Kumar Singh
B.Tech Chemical Engineering	019	Petroleum Refinery Engineering	C019631(019)	2022-23	Abhijeet Mukherjee
B.Tech Chemical Engineering	019	Polymer Science & Engineering	C019632(019)	2022-23	Lakshya Kumar Kashyap
B.Tech Chemical Engineering	019	Process Equipment Design -II	C019613(019)	2022-23	Dansi Khaushik
B.Tech Chemical Engineering	019	Plant Utility & Safety Engineering	C000647(019)	2022-23	Rashi Sharma
B.Tech Chemical Engineering	019	Process Dynamics & Control	D019712(019)	2022-23	Shakshi Pandey
B.Tech Chemical Engineering	019	Chemical Reaction Engineering	C019512(019)	2022-23	Aditya Verma



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
B. The Civil Engineering	020	Concrete Technology	C020632(020)	2022-23	MONISHA DHRUW, SANDHYA BANJARE, SIMRAN JANGDE, TEJ KIRAN, KAMLESHWARI SAHU, RUKHMANI, DENISHA SAHU, PRITI
B. The Civil Engineering	020	Transportation Engineering	C020514(020)	2022-23	GAURI SHANKAR CHAUHAN, PARMANAND.SURAJ,YAM AN KUMAR SAHU,ABHISHEK KUMAR SAHU
B. The Civil Engineering	020	Environmental Engineering	C020612(020)	2022-23	KESHAV ANAND, ANSHUL PRADHAN,NIKHIL KUMAR,VIVEK TIWARI,SONU KUMAR
B. The Civil Engineering	020	Building Material	B020315(020)	2022-23	GOPI, LOKESH LAKHE,PIYUSH TIDKE,KIRAN KUMAR,ABHISHEK RATHORE,LOKNATH
B. The Civil Engineering	020	Engineering Economics, Estimating & Costing	C020613(020)	2022-23	GREES KUMAR, MILIND CHANDRAVANSHI,BHAGI RATHI, UTKARSH SAHU
B. The Civil Engineering	020	Surveying & Geomatics	B020413(020)	2022-23	HARSH CHANDRAKAR, BHUPESH BANJARE, MANISH VERMA, VENUGOPAL KHANDELWAL, VIMALKUMAR RATHORE, CHAITANY, VIJAY KUMAR
B. The Civil Engineering	020	Plane Surveying	B020314(020)	2022-23	JAYENDRA DHIWAR
B. The Civil Engineering	020	Building Material	B020315(020)	2022-23	Kedarnath patel
B. The Civil Engineering	020	Engineering Geology	B020415(020)	2022-23	Tanisha Jaiswal
B. The Civil Engineering	020	Structural Analysis-I	B020411(020)	2022-23	Payal singh
B. The Civil Engineering	020	Structural Engineering Design-I	C020511(020)	2022-23	Vijay Dhruw
B. The Civil Engineering	020	Hydrology & Water Resources Engineering	C020512(020)	2022-23	Dinbandhu kumar
B. The Civil Engineering	020	Repairs and rehabilitation of structures	C020532(020)	2022-23	Dameed patel
B. The Civil Engineering	020	Construction engineering and management	C000615(020)	2022-23	ANUJ BAGHEL
B. The Civil Engineering	020	Foundation Engineering	D020713(020)	2022-23	LAKHAN RAJ MAHAPATRA
B. The Civil Engineering	020	Construction equipment and techniques	D020733(020)	2022-23	GHANENDRA SAHU
B. The Civil Engineering	020	Construction Management	D020833(020)	2022-23	SHAHNAWAZ KHAN
B. The Civil Engineering	020	Infrastructure Planning and Management	C000617(020)	2022-23	YOGENDRA KUMAR
B.Tech Computer Science Engineering	022	Machine Learning	D022711(022)	2022-23	Sagar Kumar, Rachit Niyal, Sitesh Kumar Tandon
B.Tech Computer Science Engineering	022	Web Technologies	C022631(022)	2022-23	Rishabh Parth Choudhary, Priyanshu Sahu, Vinayak Shivankar
B.Tech Computer Science Engineering	022	Software engg. And project managemnt	C022612(022)	2022-23	Anjali Sahu, Juhi Kumari, Ravindra Paswan, Pratham Bhoi



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
B.Tech Computer Science Engineering	022	Internet and Web Technology	D022713(022)	2022-23	Rameshwar
B.Tech Computer Science Engineering	022	Principles of Programming Language	B022313(022)	2022-23	ANKIT PRAJAPATI
B.Tech Computer Science Engineering	022	Network Programming	C022634(022)	2022-23	Raju
B.Tech Computer Science Engineering	022	Database Management system	B022413(022)	2022-23	DHARAM KUMAR SAHU
B.Tech Computer Science Engineering	022	Object oriented analysis and design	C022532(022)	2022-23	KHUSHI SONCHHATRA
B.Tech Computer Science Engineering	022	Compiler Design	C022611(022)	2022-23	Prachi Verma
B.Tech Computer Science Engineering	022	Soft Computing	C022633(022)	2022-23	Jkarna Chandrakar
B.Tech Computer Science Engineering	022	Object oriented programing with java	B022414(022)	2022-23	Isha Vishwakarma
B.Tech Computer Science Engineering	022	Formal Language and automata theory	C022513(022)	2022-23	Anant Biswas
B.Tech Computer Science Engineering	022	R Programming	D022832(022)	2022-23	Anshu Pandey
B.Tech Computer Science Engineering	022	Machine Learning	D022711(022)	2022-23	Amandeep Singh Bhogal
B.Tech Computer Science Engineering	022	Natural Language Processing	D000816(022)	2022-23	RAHUL DEWANGAN
B.E. Electrical and Electronics Engineering	024	Microcontroller and Embedded System	C024632(024)	2022-23	Mukesh mehta, Shalini Thakur, Hamaira Khan, Lukeshwar Sahu
B.E. Electronics and Telecommunication Engineering	028	Instrumentation & IoT	D028712(028)	2022-23	Ayushi Patle, Dulari Sahu, Devprakash Sahu, Manish kumar Sinha
B.E. Electrical and Electronics Engineering	024	Electrical circuit analysis	B024312(024)	2022-23	CHANDAK
B.E. Electrical and Electronics Engineering	024	Electrical Machine I	B024313(024)	2022-23	POONAM AGRAWAL
B.E. Electrical and Electronics Engineering	024	Electrical Machine II	B024413(024)	2022-23	JHAMMAN LAL YADAV
B.E. Electrical and Electronics Engineering	024	Control System	C024511(024)	2022-23	INDRANEEL CHOWDHURY
B.E. Electrical and Electronics Engineering	024	Power Electronics	C024513(024)	2022-23	JATIN PATEL
B.E. Electrical and Electronics Engineering	024	Instrumentation Techniques	C024611(024)	2022-23	DEWANSH KUMAR THAKUR
B.E. Electrical and Electronics Engineering	024	Digital Control System	C024634(024)	2022-23	SUBHUJ KUMAR PANDEY
B.E. Electrical and Electronics Engineering	024	Power Plant Engineering	C024533(024)	2022-23	SURBHI PAIKRA
B.E. Electrical and Electronics Engineering	024	Electric Drives	D024711(024)	2022-23	CHANDRAPRAKASH VERMA
B.E. Electrical and Electronics Engineering	024	High Voltage Engineering	D024713(024)	2022-23	BHAWESH KUMAR
B.E. Electrical and Electronics Engineering	024	Power Systems Operation and Control	D024738(024)	2022-23	AVINASH BUNDELKAR
B.E. Electrical and Electronics Engineering	024	Switched Mode Power Converter	D000722(025)	2022-23	TAMESH VERMA
B.E. Electrical and Electronics Engineering	024	Industrial Automation	D000805(025)	2022-23	DEHRAJ KUMAR CHOUKESY
B.E. Electrical and Electronics Engineering	024	Electric Machine Design	C024534(024)	2022-23	RIHAL DAS SAHU



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
B.Tech Mechanical Engineering	037	Design of Machine Elements	C037611(037)	2022-23	ABHISHEK KUMAR, ASHISH CHANDRA BEHERA, MD. HARUN KHAN, YAMAN KUMAR DESHMUKH
B.Tech Mechanical Engineering	037	Fluid Mechanics	B037412(037)	2022-23	KHUMESH KUMAR NISHAD, SANTOSH KUMAR, OM PRAKASH, NIRMAL PRADHAN
B.Tech Mechanical Engineering	037	Fluid Machines	C037513(037)	2022-23	VISHAL JHA, RAKESH KUMAR, DHAKESHWAR, LAXMIKANT KEWAT
B.Tech Mechanical Engineering	037	Manufacturing Process	B037414(037)	2022-23	TOPESHWARI, ABHISHEK KUMAR BANJARE, VISHAL MINI, SANJU KUMAR
B.Tech Mechanical Engineering	037	Engineering Mechanics	B037313(037)	2022-23	Adarsh Dixit
B.Tech Mechanical Engineering	037	Manufacturing Process	B037414(037)	2022-23	Bhaskar Sahu
B.Tech Mechanical Engineering	037	Dynamics of Machine	C037514(037)	2022-23	Divyansh Verma
B.Tech Mechanical Engineering	037	Internal Combustion Engine	C037511(037)	2022-23	Rishikesh Yadav
B.Tech Mechanical Engineering	037	Operation Research	C037531(037)	2022-23	Chandan Patel
B.Tech Mechanical Engineering	037	Manufacturing Technology	C037612(037)	2022-23	Rohit Prasad
B.Tech Mechanical Engineering	037	Design of Machine Elements	C037611(037)	2022-23	Lav Nishad
B.Tech Mechanical Engineering	037	Power Plant Engineering	C037632(037)	2022-23	Mohit Kumar Pandey
B.Tech Mechanical Engineering	037	Managing Innovation & Entrepreneurship	C000609(037)	2022-23	Priyanshu Kumar
B.Tech Mechanical Engineering	037	Design of Transmission System	D037711(037)	2022-23	Abhishek Sahu
B.Tech Mechanical Engineering	037	Automation in Manufacturing	D037713(037)	2022-23	Jyant Patel
B.Tech Mechanical Engineering	037	Machine Tool Technology	D037731(037)	2022-23	Bhupendra
B.Tech Mechanical Engineering	037	Kinematic of Machine	B037415(037)	2022-23	Yakshraj Chouhan
M.Tech Environmental Engineering	30	Principals of Environmental Engg.	530111 (19)	2022-23	Pankaj Singh
M.Tech Environmental Engineering	30	Advanced Water Supply Engg.	530231 (19)	2022-23	Pankaj Kumar Chand
M.Tech Environmental Engineering	30	Environmental Measurement & Impact Assessment	530214 (19)	2022-23	Harprit Singh
M.Tech Environmental Engineering	30	Principals of Environmental Engg.	530111 (19)	2022-23	Pravin Kumar
M.Tech Environmental Engineering	30	Energy & Environment	530131 (19)	2022-23	Vikas Dubey
M.Tech Environmental Engineering	30	Advanced Water Supply Engg.	530231 (19)	2022-23	Prasun Jain
M.Tech Environmental Engineering	30	Advanced Water Supply Engg.	530231 (19)	2022-23	Urwashi Chandrakar
M.Tech Environmental Engineering	30	Energy & Environment	530131 (19)	2022-23	Dolly Chandrakar



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
M.Tech Environmental Engineering	30	Water Pollution Control	530114 (19)	2022-23	Subhankar Gayen
M.Tech Environmental Engineering	30	Principals of Environmental Engg	530111 (19)	2022-23	Priyesh Kumar Tiwari
M.Tech Environmental Engineering	30	Energy & Environment	530131 (19)	2022-23	Pragya Patel
M.Tech Environmental Engineering	30	Energy & Environment	530131 (19)	2022-23	T Jayshree
M.Tech Environmental Engineering	30	Water Pollution Control	530114 (19)	2022-23	Samabhi Sharma
M.Tech Environmental Engineering	30	Natural Resource Management	530132 (19)	2022-23	Jitendra Katre
M.Tech Environmental Engineering	30	Advanced Water Supply Engg	530231 (19)	2022-23	Anisha Agrawal
M.Tech Environmental Engineering	30	Advanced Water Supply Engg	530231 (19)	2022-23	Ashish Nanda
M.Tech Environmental Engineering	30	Principals of Environmental Engg	530111 (19)	2022-23	Swapnil Sharma
MBA	76	Marketing Management	576213(76)	2022-23	PRATIBHA SALAM, SHIVANI SAHU, ALOK TIWARI, RISHABH CHAWDA
MBA	76	Management Concepts & Processes	576111(76)	2022-23	RITIK SINGH, SANSKAR THAKUR, SHIVANI VASWANI, RAVINDRA AGRAWAL, ASHISH PANDEY, INDRANEEL ROY
MBA	76	Managerial Communication	576115(76)	2022-23	SOUMYA GUNDHAR, MEGHA SONKAR, AAKASH DUTT ARYA, OM BAGHEL
MBA	76	Managerial Economics	576114(76)	2022-23	KUNAL MISHRA, ABHIJIT BISWAS, NEHA SINGH, ARYAN SHUKLA
MBA	76	Business Ethics and CSR	576118(76)	2022-23	MOHNISH SHRIVAS, CHANDANI KUMARI, LAKSHMI PATHAK, GRASIKA DONGRE
MBA	76	Management Information System & DSS	576211(76)	2022-23	KAJAL KAMANI, AAYUSHMAN SHUKLA, ANIKET BAWANKAR
MBA	76	Research Methodology	576212(76)	2022-23	NISHA GUPTA, SUMITA BERA DIVYANSH SHARMA
MBA	76	Entrepreneurship Development	576218(76)	2022-23	SHANKAR MAKHJA, AANCHAL VERMA, AYUSH SINGH, MAYANK AGRAWAL
MCA	21	Information and Web Technology	521152(21)	2022-23	Manisha Singh
MCA	21	Database Management System	521252(21)	2022-23	Anshika
MCA	21	Computer Organization & Architecture	521154(21)	2022-23	Dayman Kumar
MCA	21	Mathematical Foundations of Computer Science	521151(14)	2022-23	Vinay
MCA	21	Data Structures	521253(21)	2022-23	Kritika Madaria



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
MCA	21	Computer Oriented Numerical Analysis	521254(14) C	2022-23	Ekta Chhabra
MCA	21	Introduction to Management Functions	521255(76)	2022-23	Devid Kuree
MCA	21	Programming Laboratory in RDBMS	521262(21)	2022-23	Shivam Joshi
MCA	21	Computer Networks and Communication	521351(21)	2022-23	Shailendra Kujur
MCA	21	Formal Languages and Automata Theory	521353(21)	2022-23	K. Ishwar
MCA	21	Software Engineering	521453(21)	2022-23	Alfa Sali Franklin
MCA	21	Management Accounting	521576(76)	2022-23	T. Jaiprakash
MCA	21	Management Information Systems	521574(76)	2022-23	Sandeep Kumar Patel
MCA	21	Computer Graphics and Multimedia	521552(21)	2022-23	Bhavesih Sahu
MCA	21	System Programming	521476(21)	2022-23	Shubhrahmanu Pal
MCA	21	Logic & Functional Programming	521472(21)	2022-23	Govinda Madan Sangeet
MCA	21	Modeling & Simulation	521474(21)	2022-23	Mrinal Sahu
MCA	21	Design & Analysis of Algorithms	521475(21)	2022-23	Pratibha Sahu
MCA	21	Network Programming	521473(21)	2022-23	Madhu Pandey
MCA	21	Computer Oriented Optimization	521352(14)	2022-23	Sakshi Thakur
MCA	21	Problem Solving And Program Design With C	521153(21)	2022-23	Shruti Mishra
MCA	21	Unix Operating System and Shell Programmi	521354(21)	2022-23	Ajay Kumar
MCA	21	Artificial Intelligence and Expert System	521451(21)	2022-23	Nazz Parveen
MCA	21	Compiler Design	521452(21)	2022-23	Chetan Sahu
MCA	21	Advanced JAVA Programming	521454(21)	2022-23	Reena Gavel
MCA	21	Biometric Security	521479(21)	2022-23	Prachi Dubey
MCA	21	Data Warehousing and Mining	521581(21)	2022-23	Sharda Sahu
MCA	21	Distributed Databases	521584(21)	2022-23	Kaushal Kumar Mandal
MCA	21	E-Commerce	521575(76)	2022-23	Rashi Thakur
MCA	21	Mobile Computing	521583(21)	2022-23	Shobhna Nand



PROJECT PHASE- II REPORT

on

“FORMULATION & EVALUATION OF A PROBIOTIC FACE MASK IN A POLYHERBAL BASE”

Submitted to:

Chhattisgarh Swami Vivekanand Technical University

Bhilai, Chhattisgarh

By

ANOUSHKA SINGH (301202819001)

8th Semester

Under the guidance of:

DR. TANUSHREE CHATTERJEE

Head of Department (HOD),

BIOTECHNOLOGY

RITEE, RAIPUR



Department of Biotechnology

RAIPUR INSTITUTE OF TECHNOLOGY

MANDIR HASAUD, CHHATAUNA

RAIPUR, CHHATTISGARH

Session 2022-23





RAIPUR INSTITUTE OF TECHNOLOGY

(Under the aegis of Mahanadi Education Society)
Approved by AICTE, New Delhi, Affiliated to CSVTU, Bilai



CERTIFICATE BY THE GUIDE

This to certify that the report of the major project submitted is the outcome of the project work entitled "FORMULATION AND EVALUATION OF A PROBIOTIC FACE MASK IN A POLY HERBAL BASE " carried out by Ms. Anoushka Singh (Roll No. 301201819001 & Enrollment No. BH4879) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.), India. To the best of my knowledge, the report

- i) Embodies the work of the candidate herself.
- ii) Has duly been completed.
- iii) Is upto the desired standard both in the respect of concept and language for being referred to examiners.

(Signature of the guide)

Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RITEE
HEAD,
Deptt. of Biotechnology,
Raipur Institute of Technology,
RAIPUR, (C.G.) 492001

(Signature)



OBJECTIVE

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market.

- The objective of this work is to formulate a cosmetic preparation polyherbal face pack made from herbal ingredients which also contains probiotics as an active ingredient. Kaolin, tragacanth, orange peel powder, neem powder, Chandan powder, aloe juice powder, turmeric powder, Fullers earth and *Cicer arietinum*[3]
- In recent years, the cosmetic industry has increased the number of products classified as probiotics. While there are several potential applications for probiotics in personal care products, specifically for oral, skin, and intimate care, proper regulation of the labelling and marketing standards is still required to guarantee that consumers are indeed purchasing a probiotic product.[16]
- Powder were procured from the local market in dried, powdered and then passed through sieve no 80, mixed thoroughly prepared and evaluated for its organoleptic, physico-chemical and microscopical characters. The dried powder of combined form had passable flow property which is suitable for a face pack.[11]

Herbal face packs or masks are used to stimulate blood circulation, rejuvenates and help to maintain the elasticity of the skin and remove dirt from skin pores. It is a very good attempt to establish the herbal face pack containing different powders of plants.[5] The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and time tested usefulness of many ingredients. Thus in the present work, we found good properties of the face packs and further optimization studies are required on this study to find the useful benefits of face packs on human, use as cosmetic product.



Chhattisgarh Swami Vivekananda Technical University, Newai

Name of the Program: Bachelor of Technology

Semester: B.Tech – 7th

Subject: Pharmaceutical Biotechnology

Total Marks in End Semester Exam: 100

Minimum number of Class Tests: 2

Branch: Biotechnology

Course Code: D018711(018)

L: 3 T: 1 P: 0 Credits: 4

Course Objective(s):

- To impart knowledge on the basic principles of pharmaceutical Biotechnology.
- To make the students conversant with different technique fermentation, r-DNA, and gene therapy and how biotechnological technique are applicable in Pharmaceutical science especially in drugs discovery.
- The knowledge gained to understand and evaluate the different pharmaceutical parameters.
- To have the expertise and knowledge needed to be involved in different pharmaceutical care settings in community pharmacies, industrial sector, pharmaceutical sales and marketing, and drug legislations
- To have the ability for continuous self-education of new trends emerging in different fields of pharmacy through different available resources.

UNIT I Introduction of Pharmaceuticals Biotechnology

- Historical prospective of Pharmaceutical biotechnology, biotechnology and industry.
- GMP Compliance and biopharmaceutical facilities.
- Introduction to different dosage forms and formulations.

UNIT II Pharmacology

- Pharmacology.
- Dose determination.
- Route of drug administration.
- ADME of drugs.

UNIT III r-DNA Technology and Vaccines

- Current trends in Vaccines.
- Microbial transformation for production of important pharmaceuticals like steroids.
- Brief description of r-DNA technology.

UNIT IV Fermentation technology

- Fermentation Technology and Scale up Process.
- Production of Pharmaceuticals: through fermentation technology.
- Genetically engineered cells (some novel proteins, hormones, and interferon)
- Production of antibiotics (penicillin, tetracycline and streptomycin).

UNIT V Drug and Delivery System

- Drug discovery and development, Principles of targeted drug delivery system.
- Delivery consideration of biotechnological products.
- Delivery methods of peptides and proteins and related barriers.



1
EXTRACTION, PURIFICATION AND CHARACTERIZATION OF
POLYPHENOLOXIDASE FROM TOMATO PULP AND PEEL

PROJECT PHASE -II REPORT

SUBMITTED TO

DEPARTMENT OF BIOTECHNOLOGY

RAIPUR INSTITUTE OF TECHNOLOGY



MANDIR HASAUD, CHHATTAUNA, RAIPUR (C.G.)

BY

YASHRAJ SINGH KAUSHIK (3012018019015)

SEMESTER 8th B.TECH BIOTECHNOLOGY

SESSION 2019-23

UNDER GUIDANCE OF

MR VIRENDRA VAISHNAV

ASST. PROFESSOR BIOTECHNOLOGY DEP.





RAIPUR INSTITUTE OF TECHNOLOGY

(Under the aegis of Mahanadi Education Society)
Approved by AICTE, New Delhi, Affiliated to CSVTU, Bilai



CERTIFICATE BY THE GUIDE

This to certify that the report of the major project submitted is the outcome of the project work entitled "Extraction, Purification and Charectersisation of Polyphenol Oxidase from Tomato Pulp And Peel" carried out by Ms. Yashraj Singh Kaushik (Roll No. 301201819015 & Enrollment No. BH4893) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.), India. To the best of my knowledge, the report

- i) Embodies the work of the candidate herself.
- ii) Has duly been completed.
- iii) Is upto the desired standard both in the respect of concept and language for being referred to examiners.

(Signature of the guide)


Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)


(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RITEE
HEAD,
Deptt. of Biotechnology,
Raipur Institute of Technology,
RAIPUR, C.G.



ABSTRACT

Crude Polyphenoloxidase (PPO) from tomatoes peel and pulp was extracted by using potassium phosphate buffer and partially purified through Ammonium Sulphate precipitation and dialysis.

The enzyme activity of PPO was analyzed in each step by spectrophotometric assay method using Pyrogallol substrate. Protein estimation was carried out by Biuret method.

The specific activity and the enzyme yield for the pulp was 458.33U/mL and for the peel was 321.42U/mL .

The optimum pH for PPO activity was found to be 6.5. Blurett method has been used for the protein estimation more clearly.



Extraction, purification and characterization of Bromelain from Pineapple pulp
and peel

Project phase –II report

Submitted to

Department of biotechnology

Raipur Institute of technology



Mandirhasaud, Chhattauna, Raipur (C.G.)

By

Ansh Yadav (3012018019002)

Semester 8th B.tech Biotechnology

Session 2019-23

Under guidance of

Mr - Virendra Vaishnav

Asst. professor Biotechnology Dep.





RAIPUR INSTITUTE OF TECHNOLOGY

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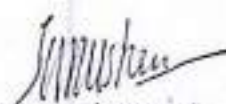
This is to certify that the report of the major project submitted is the outcome of the project work entitled "Extraction, Purification and Characterisation of Bromelain from Pineapple Pulp And Peel" carried out by Mr. Ansh Yadav (Roll No. 301201819002 & Enrollment No. BH4880) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.), India. To the best of my knowledge, the report

i) Represents the work of the candidate herself.

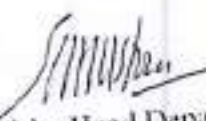
ii) Has fully been completed.

iii) Is upto the desired standard both in the respect of concept and language for being referred to examiners.

(Signature of the guide)


Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)


(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RIT
Deputy Head,
Raipur Institute of Technology,
RAIPUR (C.G.) - 492001



Abstract

Crude Bromine from pineapple peel and pulp was extracted by using potassium phosphate buffer and partially purified through Ammonium Sulphate precipitation and dialysis.

The enzyme activity of Bromelain was analyzed in each step by spectrophotometric assay method using Pyrogallol substrate. Protein estimation was carried out by Biuret method.

The specific activity and the enzyme yield for the pulp was 458.33U/mL and for the peel was 321.42U/mL .

The optimum pH for BROMELAIN activity was found to be 6.5. Blurett method has been used for the protein estimation more clearly.



Chhattisgarh Swami Vivekananda Technical University, Newai

Name of the Program: Bachelor of Technology

Semester: B.Tech – 6th

Subject: Enzyme Technology

Total Marks in End Semester Exam: 100

Minimum number of Class Tests: 2

Branch: Biotechnology

Course Code: C018612(018)

L: 3 T: 1 P: 0 Credits: 4

Course Objective(s):

- To develop skills of students in the area of Enzyme engineering and technology.
- To make the students understand the application of enzymes in different areas of biotechnology as well as towards human welfare.
- An overview of the key enzymes currently used in large scale industrial processes.
- An introduction to downstream processing & purification methods, and enzyme optimization through enzyme discovery and engineering.
- This course serves to provide an awareness of the current and possible future applications of enzyme technologies.

UNIT-I Introduction to Enzyme

- Classification of enzymes; Mechanisms of enzyme action; Concept of active site and energetics of enzyme substrate complex formation.
- Specificity of enzyme action; Principles of catalysis – collision theory, transition state theory.

UNIT-II Kinetics of Enzyme Reactions

- Kinetics of single substrate reactions; Estimation of Michelis –Menten parameters, multi substrate reactions- mechanisms and kinetics.
- Allosteric regulation of enzymes, pH and temperature effect on enzymes & deactivation kinetics.

UNIT-III Enzyme Immobilization

- Physical and chemical techniques for enzyme immobilization – adsorption, matrix entrapment, encapsulation, cross-linking, covalent binding etc.
- Advantages and disadvantages.

UNIT-IV Purification and Characterization of Enzymes from Natural Sources

- Production and purification of crude enzyme extracts from plant and microbial sources.
- Methods of characterization of enzymes.
- Development of enzymatic assays.

UNIT-V Enzyme Biosensors

- Application of enzymes in analysis.
- Design of enzyme electrodes and their application as biosensors in industry, healthcare and environment.



A Report

On

"Synthesis of Organic Fertilizers and Their Impact on Soil Fertility"

Submitted to

Chhattisgarh Swami Vivekananda Technical University,

Bhilai, C.G.

By

Barkha goswami (301201819003)

8th semester, Biotechnology

Under the guidance of

Dr. Tanushree Chatterjee

Head of the Department

Raipur Institute of Technology



Department of Biotechnology

RAIPUR INSTITUTE OF TECHNOLOGY

MANDIR HASAUD, CHHATAUNA

RAIPUR, (C.G.)

SESSION- 2019-2023





CERTIFICATE BY THE GUIDE

This to certify that the report of the major project submitted is the outcome of the project work entitled "Synthesis of organic fertilizer and their impact of soil" carried out by Ms. Barkha Goswami (Roll No. 301201819003& Enrollment No. BH14881) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.), India. To the best of my knowledge, the report

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- ii) Has duly been completed.
- iii) Is upto the desired standard both in the respect of concept and language for being referred to examiners.

(Signature of the guide)

Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RITEE

HEAD,
Dept. of Biotechnology,
Raipur Institute of Technology,
RAIPUR, (C.G.) 492101



Index

- Abstract;
- 1. Introduction
- 2. Background on organic fertilizers and their role in sustainable agriculture
- 3. Overview of Jivamrut as an effective organic fertilizer
- 4. Objectives of the project
- 5. Composition and Preparation of Jivamrut
- 6. Detailed composition of Jivamrut ingredients (cow dung, cow urine, jaggery, gram flour, water)
- 7. Step-by-step process of Jivamrut preparation
- 8. Importance of fermentation in enhancing microbial activity
- 9. Soil Fertility Enhancement
- 10. Effects of Jivamrut on soil physical properties (structure, water-holding capacity)
- 11. Influence on soil chemical properties (nutrient availability, pH, organic matter content)
- 12. Enhancement of soil microbial activity and diversity
- 13. Impact of Jivamrut on seed germination and early seedling growth
- 14. Effects on plant growth parameters (height, biomass, leaf area, etc.)
- 15. Promotion of root development and nutrient uptake efficiency
- 16. Nutrient Content Analysis



Chhattisgarh Swami Vivekananda Technical University, Bhilai

Name of the Program: Bachelor of Technology
Semester: B.Tech – 8th
Subject: Agriculture Technology
Total Marks in End Semester Exam: 100

Branch: Biotechnology
Course Code: D018811(018)
L: 3 T: 1 P: 0 Credits: 4
Minimum number of Class Tests: 2

Course Objective(s):

- To give the students a clear knowledge of current scenario of agriculture and rural development.
- To make the students learn different agricultural techniques.
- To know about the microbiology of soil.
- To understand the water harvesting methods.
- To know about the crop harvesting methods.

UNIT-I Introduction to Agriculture

- Introduction to agriculture; Indian agriculture: history; Crops, classification, general principles of crop production and introductory agronomy.
- Soil, characteristics, types, importance.
- Agriculture and biotechnology: artificial seeds, genetically modified crops, virus free plants, micropropagation, development of hybrids.

UNIT-II Soil Microbiology

- Soil microbiology: useful and harmful microorganisms, their importance.
- Diseases: disease classification, causal agent, effect of disease, disease control.
- Crop management: nutrition, weeding, irrigation, types, scheduling of irrigation and fertilizers.

UNIT-III Water Harvesting

- Soil conservation and water Harvesting: Soil erosion, causes, effects, methods of erosion control, Crop mixing and crop rotation, strip Cropping.
- Water harvesting; importance, methods, farm pond, percolation pond, dry farming techniques for improving crop production.

UNIT-IV Crop Harvesting Method

- Crop harvesting, methods.
- post harvesting techniques: importance, drying, cleaning, grading, shelling, milling; Storage, purpose, types, loss in storage, methods, packaging, types, packaging methods and materials, techniques.

UNIT-V Principles of Agroforestry

- Definition, objectives, importance and scope of agroforestry, selection of agroforestry tree species and its characteristics.
- Multipurpose trees (MPTs) in agroforestry, protein bank and fodder tree species, tree-crop interaction, soil productivity aspect of agroforestry.

PROJECT PHASE-II REPORT

On

**“EXTRACTION OF VOLATILE OIL FROM ORANGE PEELS AND
FORMULATION OF FACE SERUM”**

SUMMITTED TO:

**Chhattisgarh Swami Vivekanand Technical University
Bhilai(India)**

**For award of the degree
Of**

Bachelor of technology

In

Biotechnology, Semester 8

By

N.LAVANYA(301201819006)

Under The Guidance Of

Dr. Tanushree Chatterjee (HOD)



**Department Of Biotechnology
Raipur Institute Of Technology
Mandir Hasaud, Chhattauna
Raipur (C.G)**

SESSION : 2022-2023





RAIPUR INSTITUTE OF TECHNOLOGY

(Under the aegis of Mahanadi Education Society)
Approved by AICTE, New Delhi, Affiliated to C.V.V.U., Bilai



CERTIFICATE BY THE GUIDE

This is to certify that the report of the major project submitted is the outcome of the project work entitled "Extraction of Volatile oil from Orange Peel and Formation of Face Serum" carried out by Ms. N. Lavanya (Roll No. 301201819009 & Enrollment No. BH4884) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.), India. To the best of my knowledge, the report

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(Signature of the guide)

Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RITEE

Dr. Tanushree Chatterjee
Deptt. of Biotechnology
Raipur Institute of Technology
RAIPUR, C.G. 492002



OBJECTIVE

Face serums are powerhouses of active ingredients designed to target specific skin types, issues and needs. They can come in many different types of cosmetic formulation. The most common is the light emulsion but you will find also gel, water, oil-only, and pressed balm serums on the market. Serums are formulated with precision to address specific skincare needs. So choose a serum carefully. Mostly, serums are intended for daily use after cleansing and toning your face but before applying a moisturizer if you use one.

- The main objective of this project is to formulation of face serum from the extracted volatile oil which is extract from the orange peels and the ingredients like glycerine, xantham gum, and rose oil.
- There is no single, one-serum-fits-all product or brand of serum on the market. Your choice of facial serum depends on your specific skincare needs and preferences. Serums come in many different types of cosmetic formulation with active ingredients designed to target areas of the face, such as the under eye area, and particular skincare issues. Gel- and water-based serums may contain humectants which may leave a slightly sticky feel on the skin. Anhydrous serums like oil-only and pressed balm serums may have too heavy or greasy a skin feel for your liking
- Skin care enthusiasts tout vitamin C skin treatments and serums as having a range of benefits, such as balancing skin tone, reducing hyperpigmentation, and reducing the signs of aging.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of Program:	Bachelor of Technology.		
Branch:	Common to all Branches	Semester:	VII
Subject:	Phytochemistry	Code:	D000711(018)
Total Theory Periods:	40	Total Tutorial Periods:	Ten (Minimum)
Class Tests:	Two (Minimum)	Assignments:	2 (Minimum)
ESE Duration:	Three Hours	Max Marks:100	Min Marks: 35

Course Objective(s):

- To make the students familiar and aware of constitution, classification, structure determination and isolation of compounds present in plants.
- To make them learn about synthesis of drugs and use of different plants and chemical compounds to cure various diseases.
- To make them learn about synthesis and application of important biomolecules like lipid, protein, vitamins etc.
- To learn about the drug development process.
- To understand the chemistry behind the plant metabolites.

UNIT I	Introduction of plant constituents • A study of plant constituents with reference to classification. • Isolation and nomenclature of terpenes. • Structure determination and identification general methods of structure elucidation of terpenes. • Volatile oils: classification of citral and citronellol, menthol and camphor, Farnesol, Zinziberene.
UNIT II	Phytochemical Study • Alkaloids: Classification, isolation and general methods for structure investigation, structure elucidation of ephedrine and atropine. • Nicotine, study of ephedra and cinchona. • Structure of uric acid and caffeine. Tannins: general chemistry of tannins
UNIT III	Protein • Proteins: structure of proteins, partial and complete hydrolysis of polypeptides, determination of amino acid sequences. • Study of gelatin, papain and hyaluronidase.
UNIT IV	Lipid • Lipids: General chemistry of lipids and classification, hydrolysis of fats. • Study of following drugs- castor, olive, coconut.
UNIT V	Drugs and Vitamins • Study of following drugs with reference to sources, preparation, constituents and uses: honey, Starches and dextrin. • Vitamins: chemistry and structure determination of thiamine, riboflavin, ascorbic acid, vitamin A.

Text books:

1. Chemistry of Natural Products, P. S. Kalsi, Kalyani Publishers.
2. Organic Chemistry of Natural Products (Vol I & Vol II), Chatwal, Himalayan Publishers.
3. Synthetic Drugs, Chatwal, Himalayan Publishers.



PROJECT PHASE – 2

On

“ANALYSIS OF CUSCUTA DODDERS AND ITS OIL”

Submitted to

Chhattisgarh Swami Vivekananda Technical University,

Bhilai, C.G.

By

Nandita Bhoyar (30120181900, Enroll No.- BH4885)

8th semester, Biotechnology

Under the guidance of

Dr. Tanushree Chatterjee

Head of the Department

Raipur Institute of Technology



Department of Biotechnology

RAIPUR INSTITUTE OF TECHNOLOGY

MANDIR HASAUD, CHHATAUNA

RAIPUR, (C.G.)

SESSION- 2019-2023





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Approved by AICTE, New Delhi, Affiliated to CSVTU, Bilhail

SINCE 1995
RITEE

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This to certify that the report of the major project submitted is the outcome of the project work entitled "ANALYSIS OF CUSCUTA DODDERS AND ITS OIL " carried out by Ms. Nandita Bhoyar (Roll No. 301201819007 & Enrollment No. BH4885) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilhail (C.G.), India. To the best of my knowledge, the report

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(Signature of the guide)


Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilhail (C.G.)


(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RITEE
HEAD,
Deptt. of Biotechnology,
Raipur Institute of Technology,
RAIPUR (C.G.) 492001



Cuscuta, commonly known as dodder or amarbel, is a genus of over 201 species of yellow, orange, or red (rarely green) parasitic plants. Formerly treated as the only genus in the family *Cuscutaceae*, it now is accepted as belonging in the morning glory family, *Convolvulaceae*, on the basis of the work of the Angiosperm Phylogeny Group.^[1] The genus is found throughout the temperate and tropical regions of the world, with the greatest species diversity in subtropical and tropical regions; the genus becomes rare in cool temperate climates, with only four species native to northern Europe.^[2]

Folk names include: strangle tare, scaldweed, beggar weed,^[3] lady's laces, fireweed,^[4] wizard's net, devil's guts, devil's hair, devil's ringlet, goldthread, hail weed, hair weed, hell bine, love vine, pull-down, strangle weed, angel hair, and witch's hair.

Cuscuta can be identified by its thin stems appearing leafless, with the leaves reduced to minute scales. In these respects it closely resembles the similarly parasitic, but unrelated genus, *Cassytha*. From mid-summer to early autumn, the vines can produce small fruit that take the same color as the vine, and are approximately the size of a common pea. It has very low levels of chlorophyll; some species such as *Cuscuta reflexa* can photosynthesize slightly, while others such as *C. europaea* are entirely dependent on the host plants for nutrition.^[6]

Dodder flowers range in color from white to pink to yellow to cream. Some flower in the early summer, others later, depending on the species. The seeds are minute and produced in large quantities. They have a hard coating, and typically can survive in the soil for 5–10 years, sometimes longer.

Dodder seeds sprout at or near the surface of the soil. Although dodder germination can occur without a host, it has to reach a green plant quickly and is adapted to grow towards the nearby plants by following chemosensory clues. If a plant is not reached within 5 to 10 days of germination, the dodder seedling will die. Before a host plant is reached, the dodder, as other plants, relies on food reserves in the embryo; the cotyledons, though present, are vestigial.



Chhattisgarh Swami Vivekananda Technical University, Newai

Name of the Program: Bachelor of Technology

Semester: B.Tech – 5th

Subject: Analytical Techniques

Total Marks in End Semester Exam: 100

Minimum number of Class Tests: 2

Branch: Biotechnology

Course Code: C018513(018)

L: 3 T: 1 P: 0 Credits: 4

Course Objective(s):

- To learn different modern analytical techniques used in biotechnology.
- This subject is to provide a strong basis of Analytical Techniques.
- It also helps for assurance of quality, safety and efficacy of drugs, pharmaceuticals and of any compound.
- An overview of the instruments used in isolation and separation of molecules.
- To provide scientific understanding of analytical techniques and detail interpretation of results.

UNIT-I Microscopy

- Light spectroscopy and Microscopy-Absorption, IR, Scattering (Raman and Rayleigh).
- Resonance Raman, Fluorescence (steady-state and time resolved), confocal microscopy.
- Multi-photon microscopy, Atomic Force Microscopy.

UNIT-II Chromatography

- Chromatography-Ion-Exchange, Affinity.
- Hydrophobic, Size exclusion.
- FPLC, HPLC, GC.

UNIT-III Centrifugation and Electrophoresis Techniques

- Ultracentrifugation – Principle and types.
- Electrophoresis- Principles, methodology and types, 1D & 2D Gels; Pulse- Field Gel Electrophoresis(PFGE); Capillary electrophoresis; Gradient gel electrophoresis; Polyacrylamide Gel Electrophoresis (PAGE).
- Western blotting; Southern blotting; Northern blotting

UNIT-IV Colorimetry and Spectrophotometry

- Solution- and solid-state NMR spectroscopy, X-ray crystallography.
- Massspectroscopy-MALDI, LC-MS, GC-MS, MS-MS.
- Calorimetry- Basic Principle.

UNIT-V Genomics and Proteomics

- MALDI-Mass imaging, Proteomics, MS and NMR based Metabolomics.
- DNA and RNA sequencing for genomics,
- PCR for transcriptomic, Real time PCR, Droplet PCR.
- Surface Plasmon Resonance (SPR), Bio-layer interferometry (BLI), High content screening.

Text Books:

1. Biophysical Chemistry, Vol II by Charles R. Canter and Paul R. Shimmel.
2. Protein Purification: Principles and Practice by Robert K. Scopes (Narosa).
3. Principles of Fluorescence Spectroscopy by Joseph R. Lakowicz.



"PRODUCTION OF BIOETHANOL FROM MOLASSES"

A PHASE-II PROJECT REPORT SUBMITTED TO

Chhattisgarh Swami Vivekanand Technical University Bhilai

In partial fulfillment of the award of degree

BACHELORS OF TECHNOLOGY

In

BIOTECHNOLOGY

Submitted by

SHAHIN ANSARI(301201819011)

Submitted to



DEPARTMENT OF BIOTECHNOLOGY

RAIPUR INSTITUTE OF TECHNOLOGY

APRIL-MAY (2023)





RAIPUR INSTITUTE OF TECHNOLOGY

(Under the aegis of Mahamdi Education Society)
Approved by AICTE, New Delhi, Affiliated to CSVTU, Bilai



CERTIFICATE BY THE GUIDE

This to certify that the report of the major project submitted is the outcome of the project work entitled "Production of Bioethanol" carried out by Ms. Shahin Ansari (Roll No. 301201819011 & Enrollment No. BH4889) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.), India. To the best of my knowledge, the report

- i) Embodies the work of the candidate herself,
- ii) Has duly been completed,
- iii) Is upto the desired standard both in the respect of concept and language for being referred to examiners.

(Signature of the guide)

Dr. Vinushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

(Signature of the Head Department)

Dr. Vinushree Chatterjee
Department of Biotechnology
RITEE

Head,
Dept. of Biotechnology,
Raipur Institute of Technology,
RAIPUR, (C.G.) 492001



Abstract:

This report provides a comprehensive overview of the production process of bioethanol from molasses, a byproduct of the sugar industry. Molasses, a rich source of fermentable sugars, is utilized as a feedstock for bioethanol production through a series of steps, including pretreatment, enzymatic hydrolysis, fermentation, distillation, and purification. The report explores each stage of bioethanol production from molasses, highlighting the specific considerations, challenges, and advantages associated with this feedstock. Additionally, it discusses the potential benefits of bioethanol production from molasses in terms of sustainability, waste utilization, and energy security.



Chhattisgarh Swami Vivekananda Technical University, Newai

Name of the Program: Bachelor of Technology
Semester: B.Tech – 5th
Subject: Entrepreneurship & Startups
Total Marks in End Semester Exam: 100
Minimum number of Class Tests: 2

Branch: Biotechnology
Course Code: C018511(018)
L: 3 T: 1 P: 0 Credits: 4

Course Objective(s):

- Acquiring Entrepreneurial spirit and resourcefulness.
- Familiarization with various uses of human resource for earning dignified means of living.
- Understanding the concept and process of bioentrepreneurship - its contribution and role in the growth and development of individuals and the nation.
- Acquiring entrepreneurial quality, competency, and motivation.
- Learning the process and skills of creation and management of entrepreneurial venture.

UNIT-I Introduction to Entrepreneurship and Start – Ups

- Definitions, Traits of an entrepreneur, Intrapreneurship, Motivation
- Types of Business Structures, Similarities/differences between entrepreneurs and managers.
- Bioentrepreneurship; Building of a Bioentrepreneur; Indicators of Bio entrepreneurship.

UNIT-II Components of a Biotech company

- History of establishment of pioneer biotechnology companies, key for success.
- Mission and Strategy; Paths for starting new Biotech ventures.
- Product selection for new Biotech venture; Successful Bioentrepreneur in India.

UNIT-III Biotech Business Models and Management

- Vertical model, Product Model, Platform Business Model, Hybrid Model, Service Business Model from Genomics based companies.
- Company's Organization Structure,
- Recruitment and management of talent.
- Financial organization and management

UNIT-IV Business Plan

- General considerations: Business plan - Do's and don'ts.
- How to write Business proposal, Checklist for Business proposal writing.
- Deficiencies in startup Business Plan.

UNIT-V Business Strategies and Technology Transfer

- Intellectual property in biotech: Licensing, Accessing University technology.
- Licensing of Biotechnological invention, funding agencies in India



PROJECT PHASE - II

"GREEN ALGAE (*micro algae*) AS BIOFUEL"

Submitted by

Twinkle Sahu

B.Tech (Biotechnology) Final Year 8th sem.

Under the guidance of

Dr. Tanushree Chatterjee

Dept. of Biotechnology, RITEE



Department of Biotechnology

Raipur Institute of Technology (RITEE), Raipur (CG)

2022-23





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This to certify that the report of the major project submitted is the outcome of the project work entitled "Green Algae (Micro Algae) as Biofuel" carried out by Ms. Twinkle Sahu (Roll No. 301201819013 & Enrollment No. BH4891) under my supervision for the award of the degree of Bachelor of Technology in Biotechnology from Chhattisgarh Swami Vivekanand Technical University, Bilhail (C.G.), India. To the best of my knowledge, the report

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(Signature of the guide)


Dr. Tanushree Chatterjee
HOD
Biotechnology RITEE

Forwarded to the Chhattisgarh Swami Vivekanand Technical University, Bilhail (C.G.)


(Signature of the Head Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
RITEE
HEAD,
Dept. of Biotechnology,
Raipur Institute of Technology
Bilhail, C.G.



INTRODUCTION:-

The transportation and energy sectors are the major anthropogenic sources, responsible in European Union (EU) for more than 20% and 60% of greenhouse gas (GHG) emissions, respectively. Agriculture is the third largest anthropogenic source, representing about 9% of GHG emissions, where the most important gases are nitrous oxide (N_2O) and methane (CH_4). It is expected that with the development of new growing economies, such as India and China, the global consumption of energy will raise and lead to more environmental damage.

GHG contributes not only to global warming (GW) but also to other impacts on the environment and human life. Oceans absorb approximately one-third of the CO_2 emitted each year by human activities and as its levels increase in the atmosphere, the amount dissolved in oceans will also increase turning the water pH gradually to more acidic. This pH decrease may cause the quick loss of coral reefs and of marine ecosystem biodiversity with huge implications in ocean life and consequently in earth life. As GW is a problem affecting different aspects of human life and the global environment, not only a single but a host of solutions is needed to address it. One side of the problem concerns the reduction of crude oil reserves and difficulties in their extraction and processing, leading to an increase of its cost. This situation is particularly acute in the transportation sector, where currently there are no relevant alternatives to fossil fuels.

To find clean and renewable energy sources ranks as one of the most challenging problems facing mankind in the medium to long term. The associated issues are intimately connected with economic development and prosperity, quality of life, global stability, and require from all stakeholders tough decisions and long term strategies. For example, many countries and regions around the world established targets for CO_2 reduction in order to meet the sustainability goals agreed under the Kyoto Protocol.

Presently many options are being studied and implemented in practice, with different degrees of success, and in different phases of study and implementation. Examples include solar energy, either thermal or photovoltaic, hydroelectric, geothermal, wind, biofuels, and carbon sequestration, among others. Each one has its own advantages and problems and, depending on the area of application, different options will be better suited. One important goal is to take measures for transportation emissions reduction, such as the gradual replacement of fossil fuels by renewable energy sources, where biofuels are seen as real contributors to reach those goals, particularly in the short term.

Biofuels production is expected to offer new



Chhattisgarh Swami Vivekananda Technical University, Newai

Name of the Program: Bachelor of Technology
Semester: B.Tech – 3rd
Subject: Microbial Technology
Total Marks in End Semester Exam: 100
Minimum number of Class Tests: 02

Branch: Biotechnology
Course Code: B018312(018)
L: 3 T: 1 P: 0 Credits: 4

Course Objective(s):

- To make the student well acquainted with basic principles of Microbiology.
- The course impacts the knowledge of different types of microorganisms that are invisible to our naked eyes.
- The students will be introduced to the major groups of microorganisms and their diversity in structure and functions and microbial interactions.
- Emphasis has been laid on bacterial growth, nutrition, control, metabolism, and genetics.
- The course also introduces the students to the scope and relevance of microbes in the field of medicine, agriculture, and industry.

UNIT-I Introduction and classification

- Introduction to Microbiology, History and Scope, Organization of Prokaryotic and Eukaryotic Cell Structure and Function.
- Diversity of the Microbial World- (Microbial Evolution, Taxonomy, Microbial Diversity).
- The Viruses and pathogenic microbes.

UNIT-II Nutrition and Growth

- Bacterial morphology, structure and characterization, cellular components of bacteria, sporulation and its mechanics; Autotrophs, heterotrophs.
- Growth and nutrition, nutritional requirements, enrichment culture, growth curve, kinetics of Growth, mathematical expression of exponential growth phase.
- Measurement of growth and growth yields, Batch Culture, Synchronous growth; Techniques of pure culture.

UNIT-III Microbial metabolism

- Aerobic & anaerobic respiration.
- Fermentation, Entner-Doudoroff's pathway.
- Photosynthesis and nitrogen fixation.

UNIT-IV Microbial molecular biology and genetics

- Genome and gene structure.
- Replication, Expression, Regulation of gene expression (operon system).
- Transformation conjugation and transduction.

UNIT-V Industrial application

- Industrial and commercial applications of microorganisms.
- Climate control and detoxification of pollutants.
- Genetically modified microorganisms and their application in medicine, industry and agriculture.



A

Major Project Report

On

**"ANALYSIS & COMPARISON BETWEEN WASTE
CERAMIC CONCRETE AND COCONUT SHELL
CONCRETE"**

Submitted to

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY BHILAI (C.G.), India**



In partial fulfillment of the award of the degree of

BACHELOR OF TECHNOLOGY

In

CIVIL ENGINEERING

By

Monisha Dhruw : 301202019013

Sandhya Banjare : 301202019019

Tejikiran Banjare : 301202019023

Kamleshwari Sahu : 301202019043

Simran Jangde : 301202019021

Rukhmani Sahu : 301202019052

Priti : 301202020326

Under the Guidance of

Mr. Kamlesh Chandrakar
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Raipur Institute of Technology, Raipur

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SESSION: 2022-2023



Abstract.

Waste ceramic

The problem of implementation of the concept of Lean Manufacturing in the ceramic industry, based on the enterprise manufacturing ceramic fancy goods, is presented in this article. The most important information about the concept of Lean Manufacturing, as well as the current state of implementation of the Lean concept in the ceramic industry. Major barriers in the implementation of the Lean concept are identified and selected instruments of the Lean concept applied in individual areas of the waste elimination are assigned. Use of hazardous waste in concrete will lead to green environment. The concrete made so is called sustainable concrete which can also be called as Green concrete. Production of by-products and waste are increasing rapidly which need proper disposal, its recycling and reuse is necessary for protection of environment, reduction in dependency on natural materials, reduction in CO₂ and making concrete efficient and economical. The importance of sustainable concrete has become considerable for academia and industries. Ceramic industry in India has grown to approximately 750 million meter² production [1]. During manufacturing process and transpiration lots of ceramic product broke and ceramic waste generated every year. Ceramic products made of glazes, stains and clay which contains toxic metals like Antimony, vanadium, cadmium, copper, cobalt, lead, manganese, chromium, selenium and barium [2]. Ceramic wastes is mostly used for landfilling which makes neighboring land unfertile and contaminate groundwater. The objective of this investigation is to study and evaluation of the effects of the recycled ceramic as fine, coarse aggregate and ceramic fume as replacement for conventional material on the properties of concrete and cement matrix. In this study the effect of the replacement of conventional material with ceramic waste on the properties of concrete such as workability, Compressive strength, flexural strength, modulus of elasticity, split Tensile strength, Adhesive strength are studied in depth. Keywords – Green Concrete, Ceramic waste, recycled ceramic aggregates, Ceramic fume, floor tile.

Coconut shell

It is found that so many wastes which can be used in traditional concrete like e-wastes, rubber tyre waste, glass waste etc. The coconut shell is also a main waste which can be used in traditional concrete. Generally, coconut shells are used in traditional concrete in the form of viz., coconut shell aggregate and coconut shell fiber. This paper describes coconut shells are used as replacement of coarse aggregates. The compressive and flexural strength test were taken on 10%, 20% and 30% replacement of coarse aggregate to coconut shells. It is observed that the compressive strength of concrete is reduced in some extent and the flexural strength also reduced as replacement of coconut shell is increased, but the 10% replacement is possible to use in construction work and 20% and 30% replacement are possible to use for less important construction work under some conditions. It is found that, workability of concrete is increased than traditional concrete as percentage replacement is increased. Total cost of concrete is get reduced by replacement of coarse aggregate to coconut shells. The volume of concrete is also increased as replacement is increased, hence, the total quantity of concrete required is getting reduced and the cost is again getting reduced. This paper supports the "SWACHHA BHARAT ABHIYAN" carried by our Hon. Prime Minister Narendra Modi. Finally, this paper concluded that the Coconut Shell is possible to use for construction work as coarse aggregate under some conditions economically.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **B.Tech**
Branch: **Civil Engineering**
Subject: **Professional Elective-II (Concrete Technology)**
Class Tests: **Two (Minimum)**
ESE Duration: **Three Hours**

Semester: **VI**
Code: **C020632(020)**
Assignments: **Two (Minimum)**
Maximum Marks: **100**
Minimum Marks: **35**

UNIT I Concrete Making Materials:

Review of Hydration and structure of hydrated cement, Classification of Aggregates, Properties, grading requirements, Methods of combining aggregates, Surface index, specified grading, Alkali aggregate reaction, Quality of mixing and curing water. Sustainability issues in concrete making materials.

UNIT II Admixtures and Fresh Concrete:

Chemical admixtures – Functions of Admixtures, Classification of Admixtures.

Mineral Admixture – (Flyash, Silica fumes, GGBS, Rice husk ash) sources and utilization. Effects of use of chemical and mineral admixtures on the properties of fresh concrete, Rheology, Workability, Factors affecting workability, Measurement of Workability, Requirements of Workability, Segregation, Bleeding and terms related to fresh concrete.

UNIT III Hardened Concrete and Durability:

Compressive strength and parameters affecting it: water cement ratio, compaction, curing. Gain of strength with age, Shrinkage and its Types, Maturity Concept, Time dependent behavior of concrete -creep, shrinkage and fatigue. Elasticity, porosity, Durability of Concrete, Permeability of Concrete relation between durability and permeability, Corrosion of steel rebars, Carbonation of concrete. Quality control in concrete. Effects of use of chemical and mineral admixtures on the properties of hardened concrete.

UNIT IV Concrete Mix Design :

Principles of Concrete mix design, Target strength, nominal mix, design mix, sampling, statistical interpretation of cube results, understanding of normal distribution curve, characteristic strength of concrete, factors in the choice of mix proportion.

Concrete mix design using OPC, PPC, PSC as per Indian standard Code 10262 :2019, study of IS 10262: 2019, American & British methods, Non-destructive tests on concrete.

UNIT V Special Concrete & Concreting Methods:

Behavior of concrete in extreme environment; temperature problem in concreting, hot weather, cold weather and under water conditions, Resistance to freezing, Need of special concrete, properties, ingredients, method of development and applications of Light weight concrete, Fibre reinforced concrete, Polymer Concrete, self-compacted concrete, High performance concrete, Ready mix concrete, special concreting methods, Vacuum dewatering - underwater concrete, special form work.

Text Books:

1. Concrete Technology – M.L. Gambhir (Tata McGraw Hill)
2. Concrete Technology Theory and Practice - M. S. Shetty, (S.Chand and Company Ltd. Delhi)

Reference Books:

1. Concrete Technology – A. M. Neville, J. J. Brooks, (Pearson Education)
2. Light Weight Concrete Academic Kiado – Rudhani G. (Publishing Home of Hungarian Academy of Sciences)
3. Concrete Technology – R.S. Varshney (Oxford, IBH Publishers)



A
Major Project Report
On
"Partially Replacement of Aggregate by Steel Slag in Asphalt Mix Design"

Submitted to
Chhattisgarh Swami Vivekanand Technical University,
Bhilai, (C.G.), India



In Partial Fulfillment of the award of the Degree of
BACHELOR OF TECHNOLOGY
In
CIVIL ENGINEERING

Submitted by:

Parmanand (BH2222) (301202019048)

Abhisek Sahu (BH2704)(301202019058)

Yaman Kumar Sahu (BH2236)(301202019057)

Suraj Bandhade (BH2231)(301202019053)

Gaurishankar Chauhan (BH2209)(301202019040)

Under the guidance of

Mr. Manish Nayak
Assistant Professor



RAIPUR INSTITUTE OF TECHNOLOGY (RITEE) RAIPUR

Chhetauna, Mandir Hasaud Raipur (C.G.) India

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SESSION-2022-23



The use of steel slag as a replacement for aggregate in asphalt mix design has been studied and found to have numerous benefits. Steel slag is a by-product of the steel industry, and its use as a construction material can help to reduce the environmental impact of steel production.

Studies have shown that steel slag can improve the strength and durability of asphalt mixtures, as well as increase their resistance to fatigue and rutting. Steel slag also has good skid resistance and can contribute to a reduction in noise levels.

However, the use of steel slag in asphalt mix design requires careful consideration of its properties and characteristics, as well as its interaction with other components of the mix. The appropriate percentage of steel slag replacement will depend on the specific application and mix design.

In conclusion, the use of steel slag as a replacement for aggregate in asphalt mix design has the potential to provide numerous benefits, but it should be implemented carefully and with consideration of the specific project requirements.

20% replacement of steel slag in the place of aggregate in Asphalt concrete mix design. So in our major project the design mix satisfies all the test methods and its properties from all directions. and can be used in flexible road construction.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: Bachelor of Technology

Branch: Civil Engineering

Subject: Transportation Engineering

Class Tests: Two (Minimum)

ESE Duration: Three Hours

Semester: V

Code: C020514(020)

Assignments: Two (Minimum)

Maximum Marks: 100

Minimum Marks: 35

UNIT-1: Highway development and planning: Classification of roads, road development in India, Current road projects in India; highway alignment and project preparation.

Geometric Design: Typical Cross Sections in Urban and Rural roads, Various Cross Sections Elements, Width of Carriage-way, Shoulders, Medians, Width of Roadways, Right of Way, Camber, Design Speed, Sight Distance, Stopping Sight Distance, Passing Sight Distance, Sight Distance at Inter-Section, Passing Zones, Super Elevations, Set Back, Extra Widening on Horizontal Curve, Transition Curve, Design of Horizontal and Vertical Alignment, Combinations of Horizontal and Vertical Alignment.

UNIT-2: Traffic engineering and control: Traffic Characteristics, traffic engineering studies, traffic flow and capacity, traffic regulation and control; design of road intersections; design of parking facilities; highway lighting; problems.

UNIT-3: Pavement materials: Materials used in Highway Construction- Soils, Stone aggregates, bituminous binders, bituminous paving mixes; Portland cement and cement concrete; desirable properties, tests, requirements for different types of pavements. Problems.

Design of pavements: Introduction; flexible pavements, factors affecting design and performance; stresses in flexible pavements; design of flexible pavements as per IRC; rigid pavements- components and functions; factors affecting design and performance of CC pavements; stresses in rigid pavements; design of concrete pavements as per IRC; problems.

UNIT-4: Railway Engineering: Permanent way, gauges, coning of wheels and tilting of rails. Rail types, wear and failure, Sleepers, rail Fixtures and fastening, ballast cushion.

UNIT-5: Geometric design of railway track: Gauge, Gradients speed, super elevation, cant deficiency, Negative super elevation, curves, length of transition curves, grade compensations.

Points and crossings: Left and right hand turnout, design calculations for turnout & Crossover, railway track functions. Station and Yards: Types, functions facilities & equipment.

Name of Text Books:

1. Highway Engineering – S. K. Khanna & C.E.G. Justo (Khanna Publishers, Delhi)
2. Highway Engineering – L.R. Kadiyalai, 'Traffic Engineering and Transport Planning', Khanna Publishers.
3. Railway Engineering – S.C. Saxena & Arora, "A Text Book of Railway Engineering", Dhanpat Rai & Sons Publications.
4. Railway Engineering – S.C. Rangwala, "Railway Engineering" (Charotar Publishing House Pvt. Ltd.)

Name of Reference Books:

1. Partha Chakraborty, Principles of Transportation Engineering, PHI Learning.
2. Paul H. Wright and Karen K. Dixon, Highway Engineering, 7th Edition, Wiley Student Edition, 2009.
3. Railway Tracks Engineering: J.S. Mundrey, Tata Mc. Graw-Hill Publishing.

COURSE OUTCOME: Upon completion of this course, the students:

1. Will conversant with various terminologies of Highway Engineering and design geometric elements of highways and expressways.
2. Will carry out traffic studies and implement traffic regulation and control measures.
3. Will evaluate highway construction material and design rigid and flexible pavements as per IRC.
4. Will conversant with various terminologies of Railway Engineering.
5. Will design turnouts in Railway.



A
Major Project Report
on
SEWAGE TREATMENT PLANT AT RITEE
Submitted to
**CHHATTISGARH SWAMI VIVEKNAND TECHNICAK
UNIVERSITY**
BHILAI (C.G.), India



In partial fulfilment of the award of the degree of
BACHELOR OF TECHNOLOGY

In
CIVIL ENGINEERING

By
KESHAV ANAND 301202019008
NIKHIL KUMAR 301202019027
VIVEK TIWARI 301202019028
SONU KUMAR 301202019029
ANSHUL PARDHAN 30120019002

Under the Guidance of
Mr. Gopesh Dawda
Asst. Professor, Department of Civil
RITEE, Raipur



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SESSION 2022-23



ABSTRACT

Sewage treatment plants are crucial facilities that play a critical role in protecting public health and the environment by treating wastewater before it is discharged into waterways or reused. The treatment process involves several stages, including preliminary treatment, primary treatment, secondary treatment, and tertiary treatment. During these stages, physical, biological, and chemical processes are used to remove solids, organic matter, nutrients, and pathogens from the wastewater.

The treated effluent is then discharged into the environment or reused for non-potable purposes, such as irrigation or industrial processes. Sludge generated from the treatment process is also treated and safely disposed of, following strict regulatory guidelines.

The design, operation, and maintenance of sewage treatment plants require significant technical expertise, resources, and funding. To ensure optimal performance and compliance with regulatory requirements, sewage treatment plants must adopt best practices and use innovative technologies to improve efficiency, reduce energy consumption and minimize the environmental impact of the treatment process.

Overall, sewage treatment plants are critical infrastructure that helps to protect public health and the environment, improve water quality, and promote sustainable development.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **B.Tech**
Branch: **Civil Engineering**
Subject: **Environmental Engineering**
Class Tests: **Two (Minimum)**
ESE Duration: **Three Hours**

Semester: **VI**
Code: **C020612(020)**
Assignments: **Two (Minimum)**
Maximum Marks: **100**
Minimum Marks: **35**

UNIT-1: Introduction to Water demand: Necessity and importance of water supply schemes, Sources of water, Classification of water demands, Per capita demand, factors affecting per capita demand, Population Forecasting Techniques.

Quality of water: Common impurities, physical, chemical and biological characteristics of water/wastewater, Drinking water quality standards for municipal and domestic supplies.

Unit-2: Water Processing: Objects of water processing Theory of sedimentation, Design of sedimentation tanks, Sedimentation with coagulations, Theory of filtration, Design of slow sand and rapid sand filters, Methods of disinfection, Methods of Softening, Miscellaneous treatment methods.

UNIT-3: Distribution System: Methods of distribution, layouts of distribution system, functions and its types of distribution reservoirs, storage capacity of distribution reservoir.

Sewage and Sewerage Systems: System of sanitation, Estimation of domestic and storm sewage, Design of circular sewers, Sewer appurtenances,

Sewage Treatment: Preliminary treatment systems, Screens, grit chamber, detritus tanks. Primary treatment systems- Plain Sedimentation Process, Design of Septic Tanks.

UNIT-4: Secondary treatment Systems: Trickling filters, Design of standard and high rates, Activated Sludge Process, Oxidation Pond and oxidation ditch, Aeration and Mixing Techniques,

Sewage sludge Treatment: Importance, amount and characteristics of sludge, Sludge digestion process, Design of sludge digestion tank

UNIT-5: Sewage disposal: Disposal by dilution, self-purification of polluted streams, Oxygen Sag curve, Disposal on land surfaces. Stream standards and Effluent standards, Theories of waste treatment (Volume reduction, strength reduction, new Equalization and proportioning) Summary of Industrial waste, its origin, character and treatment.

Text Books:

1. Water Supply Engineering – S.K. Garg (Khanna Publication).
2. Water Supply Engineering – B.C. Punmia (Laxmi Publication, New Delhi)

Reference Books:

1. Environmental Engineering – Peavy & Rowe (Tata McGraw Hill, New Delhi).
2. Water Supply and Sanitary Engineering – G.S. Birdi (Dhanpat Rai Publications).
3. Introduction to Environmental Science – Y. Anjaneyulu (B.S. Publications)



A
Major Project Report
On
**"UTILIZATION OF WASTE PLASTIC IN MANUFACTURING OF
BRICKS"**

Submitted to
**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY BHILAI**



In partial fulfillment of for the award of degree of

Bachelor of Technology

In

CIVIL ENGINEERING

SUBMITTED By

GOPI BAGHEL
(301202019031)

LOKESH LAKHE
(301202019010)

KIRAN PRAJAPATI
(301202019032)

LOKNATH DEVDAS
(301202019034)

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Under The Guidance of

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Asst. Professor, Department of Civil
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SESSION – 2022-23



ABSTRACT

This report outlines the utilization of plastic waste in construction industries. Plastic is a non-bio-degradable substance which takes thousands of years to decompose that creates land as well as water pollution to the environment. The quantity of plastic waste is expanding rapidly. It is estimated that the rate of usage is double for every 10 years. The Plastic usage is large in consumption and one of the largest plastic wastes is polyethylene (PE). The utilization of earth-based clay material resulted in resource depletion and environmental degradation

One such effort is the efficient use of waste plastic and laterite quarry waste with a small quantity of bitumen, to develop an alternative building material such as bricks with negligible water absorption and satisfactory strength in comparison with Laterite stone to satisfy the increasing demand of conventional building materials.

Utilizing waste plastic as construction materials especially in production of bricks is one of a promising step towards a sustainable resources and waste management. Plastic waste can substitute either partially or completely one or more of the materials in brick production. Further research based on recent research and a better understanding in utilization of plastic waste in brick is needed to produce a high durability and quality of bricks as well as to achieve the optimum balance in all aspects especially in terms of cost and functionality.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Technology**

Branch: **Civil Engineering**

Subject: **Building Materials**

Class Tests: **Two (Minimum)**

ESE Duration: **Three Hours**

Semester: **III**

Code: **B020315(020)**

Assignments: **Two (Minimum)**

Maximum Marks: **100**

Minimum Marks: **35**

UNIT – I: Cement and Aggregate - Ingredients of cement-manufacturing, Bouges compound, Hydration of cement, field and lab tests. Classification of Aggregates (Coarse and Fine), Ennore sand, Classification of Pozzolanas and applications.

UNIT – II: Concrete - Properties of concrete in fresh and hardened state, water cement ratio, Modulus of elasticity, factors affecting strength of concrete and durability, variables in proportioning concrete mixes, tests on concrete.

UNIT – III: Timber and Low cost materials - Characteristics of good timber, wood products plywood, veneers, hard boards, particle board, fibre board need for wood substitutes, form work. Low cost materials for construction – cost effective materials, industrial wastes, agricultural wastes and other materials for green buildings.

UNIT – IV: Paints and Varnishes, Bitumen and asphaltic materials - Composition of oil paint, PVC and PVCN of paint, Material for White washing, colour washing, varnishing and distempering, painting on wood and steel or metal, enamels. Bitumen and asphalt – types and uses.

UNIT – V: Other Engineering materials - Steel - structural steel properties, composition, use and grade of steels. Aluminium and its alloys: properties, uses and advantages. Glass and their uses, plastics with/without reinforcement- types and uses, Ceramics, types of tiles, Refractories, paver block, uses of PVC.

Text Books:

1. Building Materials – S.K. Duggal (New Age Publication)
2. Building Materials – S. C. Rangwala (Charotar Publication)
3. Building Materials – M.L. Gambhir, Neha Jamwal (Mc. Grawhill)

Reference Books:

1. Concrete Technology – A.M. Neville & J.J. Brooks (Pearson Education)
2. Concrete Technology – M.S. Shetty (S. Chand & Co.)
3. Engineering Materials – Surendra Singh (Laxmi Publication)
4. Construction Engineering and Management – S. Seetharaman (Umesh Publication)
5. Building Materials – Gurucharan Singh (Standard Publishers, Delhi)

Course Outcomes:

The students will be able to:

1. Identify properties of construction material.
2. Acquire fundamental knowledge of fresh and harden concrete
3. Describe characteristic of timber and use of eco friendly material in construction
4. Extend the knowledge about characteristic of paint, varnishes etc.
5. Extend the knowledge about steel, aluminium, glass etc.



A
Major Project Report
On
Quantity Estimation of Boundary Wall of RITEE Campus
SUBMITTED TO
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI



In partial fulfilment of requirements for the Award of Degree of

Bachelor of Technology

In

CIVIL ENGINEERING

By

GreesKumar : 301202019035

Milind Chandravanshi : 301202019036

Bhagirathi Kurre : 301202019037

Utkarsh Sahu : 301202019054

Abhishek Rathore : 301202019033

Under The Guidance of

Kamlesh Chandrakar

Asst. Professor Department of Civil

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SESSION: 2022- 23

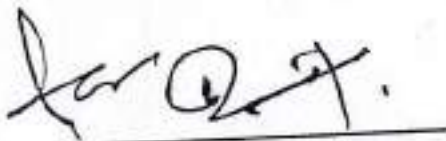


Certificate of the Supervisor

This is to certify that the report of the Project Phase II entitled "Quantity Estimation Of Boundary Wall Of RITEE Campus" is a record of bonafide research work carried out by Grees Kumar (Roll No: 301202019035, Enrollment No: BH2282), Milind Chandravanshi (Roll No: 301202019036, Enrollment No: BH2292), Bhagirathi Kurre (Roll No: 301202019037, Enrollment No: BH2203), Utkarsh Sahu (Roll No: 301202019054, Enrollment No: BH2233) and Abhishek Rathore (Roll No: 301202019033, Enrollment No: BH4179) under my guidance and supervision for award of degree of Bachelor of Technology in the faculty of Civil Engineering of Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.), India.

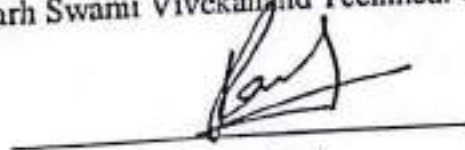
To the best of my knowledge and belief the thesis.

- ☐ Embodies the work of the candidate him/herself,
- ☐ Has duly been completed,
- ☐ Fulfils the requirement of the ordinance relating to the B.Tech degree of the University and is up to the desired standard both in respect of contents and language for being referred to the examiners.



Mr. Kamlesh Chandrakar
Assistant Professor,
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RIT, Raipur

Forwarded to Chhattisgarh Swami Vivekanand Technical University, Bhilai



(Signature of the Principal)
Raipur Institute Technology, Raipur



Abstract

This report, aims to the quantity estimating of boundary wall of RITEE campus. The study gives the need of estimation of material quantity and cost of the construction project. The main objective of this project is to estimate the required quantity of materials and required cost to complete the construction of proposed boundary wall of RITEE college, Raipur (C.G). For this purpose survey of the site was carried out which given the length of boundary wall as 1240m and the height is 1.828m. Also estimated the quantity of cement, sand ,aggregate, brick and reinforcement required for entire construction work. The total cost estimated for this construction project is Rs.5707016.5/- .



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: B.Tech

Branch: Civil Engineering

Subject: Engineering economics, Estimation & Costing

Class Tests: Two (Minimum)

ESE Duration: Three Hours

Semester: VI

Code: C020613(020)

Assignments: Two (Minimum)

Maximum Marks: 100

Minimum Marks: 35

UNIT-1: Introduction: Estimation & its purpose, data required for estimation, factors to be considered for estimation, different types of estimates, approximate estimation – objective, purpose & various methods.

General Terms: Administrative approval, technical & expenditure sanction, competent authority, BOQ, SOR, Layout plan, Measurement book, establishment charges, contingencies.

UNIT-2: Detailed Estimate: Methods for detailed estimate, units of measurements of various items of work as per IS-1200, preparation of detailed quantity estimates for single storey residential building, preparation of schedule of reinforcements for RCC building components, determination of earth work in road and canals.

UNIT-3: Rate Analysis: Definition, market survey of basic materials, Purpose, factors affecting, Thumb rule for computation of material required for different works, Task works per day, Rate analysis of important items of work, Current Schedule of Rates (CSR). Introduction to Acts pertaining of minimum wages, Workmen's' compensation.

UNIT-4: Contracts and Tender Documents: Contracts & its essentials, types of engineering contract, conditions, termination of contract, brief idea about types of tenders, tender notice, preparation of tender document, procedure for inviting tender, security deposit, liquidated damages, arbitration, and escalation.

UNIT-5: Engineering Economics: Engineering Economics & its importance in construction industry, Basic Macroeconomic (GDP) Direct & Indirect taxes of construction projects, Interest rates, Cost, Types of costs, cost control techniques, budgets, break even analysis, property valuation, Depreciation, percentage breakup of cost.

Text Books:

1. Estimating and Costing in Civil Engineering – B.N. Dutta (UBS Publishers, New Delhi)
2. Estimating and Costing and specifications – M. Chakrabarty (UBS Publishers, New Delhi)

Reference Books:

1. Textbook of Estimating and Costing – G.S. Birdi (Dhanpat Rai Publications)
2. Valuation of real properties – S.C. Rangwala (Charotar Publication)
3. A Textbook of Estimating and Costing – Kohli & Kohli (S. Chand & Co.)
4. Engineering Economics – R. Panneerselvam, (PHI)

COURSE OUTCOME:

1. Learner is able to identify various items of building and able to determine approximate estimation of buildings.
2. Learner is able to determine detailed quantity estimate and Bar bending schedule of civil engineering works from given details.
3. Learner is able to determine quantities of materials and rate analysis of any items in residential building works.
4. Learner is able to understand Contracts and Tender Documents
5. Learner is able to understand basic Engineering Economics in construction industry.



A
Major Project Report
On
**Design and Comparison of Proposed (Cement Concrete & Bitumen) Road
from RITEE Campus to RITEE Hostel**

Submitted to
Chhattisgarh Swami Vivekanand Technical University,
Bhilai, (C.G.), India



In Partial Fulfilment of the award of the Degree of
BACHELOR OF TECHNOLOGY

In
CIVIL ENGINEERING

Submitted by:

Venugopal Khandelwal (BH2150) (301202019024)

Harsh Chandrakar (BH2132) (301202019006)

Manish Verma (BH2137) (301202019011)

Bhupesh Kumar Banjare (BH2130) (301202019004)

Chaitany (BH2205) (301202019038)

Vijay Kumar (BH2234) (301202019055)

Vimal Kumar Rathore (BH2235) (301202019056)

Under the guidance of
Mr Gopesh Kumar Dawda
Assistant Professor



RAIPUR INSTITUTE OF TECHNOLOGY (RITEE) RAIPUR

Chhatauna, Mandir Hasaud Raipur (C.G.) India

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SESSION-2022-23



ABSTRACT

Design and comparison of proposed road construction using both concrete (CC) and bitumen materials. The proposed roads were designed based on standard specifications and subjected to various tests to determine their suitability for use. The study focuses on evaluating the characteristics and performance of each method, including their durability, cost-effectiveness, and environmental impact on the two materials to determine which one is suitable for the proposed road. The design process involves analyzing the traffic load and environmental conditions to determine the appropriate thickness and strength of the road. The research methodology includes a comprehensive review of the literature, field surveys, and laboratory testing. The findings indicate that both methods have their advantages and disadvantages, and the choice of construction method depends on factors such as the location, traffic volume, and budget. This study provides valuable insights for road engineers, policymakers, and other stakeholders in the transportation industry. The results of the comparison will provide insight into the benefits and drawbacks of using CC and bitumen materials in road construction, as well as recommendations for future road development projects.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: Branch: **Bachelor of Engineering**
Branch: **Civil Engineering**
Subject: **Surveying and Geomatics Surveying**
Class test: **Two (Minimum)**
ESE Duration: **Three Hours**

Semester: **IV**
Code: **B020413(020)**
Assignments: **Two (Minimum)**
Maximum Marks: **100**
Minimum Marks: **35**

UNIT-1: Trilateration and Triangulation - Principle of Trilateration, Principle and classification of Triangulation System, Triangulation chains, Station marks and Signals, Satellite station, intersected and Resected points, field work- Reconnaissance, Intervisibility of station, Angular measurement, Base line measurement.

UNIT-2: Adjustment Computations - Weighting of observations, Treatment of random errors, probability equation, Normal law of error, Most Probable Value, Propagation of errors and variances, Most probable value, Principle of Least square, Observations and correlatives, Normal Equations. Adjustment of triangulation figures

UNIT-3: Tacheometry - Definitions, Principles of stadia systems, Instrument constants, Subtense and Tangential Systems.
Construction and use of Reduction Tacheometers, Range Finders, EDM instruments, Total Station and their uses. Study of Laser Distance Meter.

UNIT-4: Photographic and aerial surveying - Photo theodolite, principle of the method of terrestrial photogrammetry, aerial surveying, scale and distortion of the vertical and tilted photograph, comparison between air photograph and map, Study of GPS, GIS and Remote Sensing.

UNIT-5: Hydrographic surveying - Introduction, shore line survey, soundings methods, gauges, equipment required for hydrographic surveying, sounding party, methods of locating soundings, reduction of soundings and plotting of soundings, problems related to hydrographic surveying.

Text Books:

1. Surveying (Vol. I & II) – Punmia, B.C. (Laxmi Publications, New Delhi, 1996)
2. Surveying (Vol. II & III) – Agor, R. (Khanna publications, Delhi, 1995)
3. Surveying (Vol. I & II) – C. Venkataramaih (Universities Press Hyderabad)
4. Surveying (Vol. II) 4e – S.K. Duggal, McGraw Hill Publications

Reference Books:

1. Surveying (Vol. II & III) – Arora, K.R. (Standard Book House, Delhi)
2. Engineering Surveying Technology – Kennie, T.J.M. and Petrie G. (Blackie & Sons Pvt. Ltd., London, 1990)
3. An Introduction to Remote Sensing and its Applications- Shivangi Somvanshi, Maya Kumari (S.K. Kataria and Sons, New Delhi)
4. Surveying (Vol. I & II) – Kanetkar T.P. (Pune Vidyarthi Griha Prakashan, Pune)

Course Outcomes:

Students will be able to:

1. Deal with the various aspects of Trilateration and Triangulation
2. Do the relevant computations, errors and observations.
3. Gain and apply the knowledge of Tacheometry, various modern survey instruments.
4. Apply the concepts of Photographic and aerial surveying and GPS.
5. Efficiently deal with the Hydrographic surveying.



**"Codelab: Empowering Developers with a Comprehensive Q&A Platform
And In-built Code Editor"**

**A Thesis submitted to
Chhattisgarh Swami Vivekananda Technical University
Bhilai, (C.G.) India**



For fulfillment of the award of the Degree

Bachelor Of Technology

In

Computer Science & Engineering

By

Sagar Kumar

Enrollment No: BH3550

Roll No: 301202219028

Rachit Niyal

Enrollment No: BH3543

Roll No: 301202219021

Sitish Kumar Tandon

Enrollment No: BH3554

Roll No: 301202219032

Under the Guidance of

Mr. Vivek Kumar Sinha

Asst. Professor, Department of Computer Science & Engineering, RITEE



**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING,
RAIPUR INSTITUTE OF TECHNOLOGY,
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Phone: 91-0771-3250790, 3208842, Fax: 91-0771- 2537 634
E-mail: contactus@rit.edu.in, Website: www.rit.edu.in**



SESSION: 2019-2023



CERTIFICATE BY THE EXAMINER

This is to certify that the project work entitled "Codelab: Empowering Developers with a Comprehensive Q&A Platform and Inbuilt Code Editor" Submitted by SAGAR KUMAR, SITESH KUMAR TANDON, RACHIT NIYAL have been completed under the guidance of MR. VIVEK KUMAR SINHA, Asst. Professor, Department of Computer Science, Raipur Institute of Technology, Raipur (C.G.) has been examined by the undersigned as a part of the examination for the award of B.TECH degree in Computer Science branch in Raipur Institute Of Technology, Raipur of Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.).

"Project Examined and Approved"


Internal Examiner
Date: 12/06/2023


External Examiner
Date: 12/06/2023

(Signature of the Principal with Seal)


12/06/2023
Principal

Raipur Institute of Technology, Raipur (C.G.)



Abstract

This thesis presents the development and evaluation of Codelab, a web application that integrates a Q&A platform with an inbuilt code editor to facilitate effective knowledge sharing, collaborative problem-solving, and practical coding exercises. The primary objective is to design, develop, and evaluate the effectiveness of Codelab in meeting the needs of developers.

Through a systematic and agile methodology, including requirements gathering, architectural design, implementation, testing, and deployment, Codelab is designed to provide a comprehensive solution for developers' needs.

The research encompasses a literature review of relevant topics, user studies, feedback, and evaluation metrics to assess the effectiveness and usability of Codelab. The findings demonstrate that Codelab enhances collaboration, productivity, and learning among developers, providing a centralized platform for knowledge sharing, code experimentation, and problem-solving.

The thesis discusses potential challenges, limitations, and the contributions of this research, offering valuable insights for future improvements and extensions of Codelab. In conclusion, Codelab empowers developers to collaborate effectively, enhance their skills, and overcome coding challenges more efficiently by seamlessly integrating a Q&A platform with an in-built code editor.



Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.)

Program / Semester: B.Tech (VII)	Branch: Computer Science & Engineering
Subject: Machine Learning	Course Code: D022711(022)
Total / Minimum-Pass Marks (End Semester Exam): 100 / 35	L: 3 T: 1 P: 0 Credits: 4
Class Tests & Assignments to be conducted: 2 each	Duration (End Semester Exam): 03 Hours

Course Objectives

1. To introduce the basic concepts of Machine Learning.
2. To introduce the concepts of Data Analysis in Machine Learning.
3. To introduce the concepts of Machine Learning algorithms.
4. To introduce the concepts related to Machine Learning model diagnosis and tuning.
5. To introduce the concepts related to Artificial Neural Networks.

UNIT- I Introduction: History and Evolution, Machine Learning Categories: Supervised Learning, Unsupervised Learning, Reinforcement Learning, Knowledge Discovery in Databases, SEMMA (Sample, Explore, Modify, Model, Assess).

UNIT-II Machine Learning Perspective of Data: Scales of Measurement, Dealing with Missing Data, Handling Categorical Data, Normalizing Data, Feature Construction or Generation. Correlation and Causation, Polynomial Regression, Logistic Regression, ROC Curve.

UNIT- III Introduction to Machine Learning Algorithms: Decision Trees, Support Vector Machine, k-Nearest Neighbors, Time-Series Forecasting, Clustering, Principal Component Analysis (PCA).

UNIT-IV Model Diagnosis and Tuning: Bias and Variance, K-Fold Cross Validation, Bagging, RandomForest, Gradient Boosting, Stacking.

UNIT-V Artificial Neural Network (ANN): Perceptron—Single Artificial Neuron, Multilayer Perceptrons (Feedforward Neural Network), Restricted Boltzman Machines (RBMs).

Text Books:

1. Mastering Machine Learning with Python in Six Steps– Manohar Swamynathan, APress.
2. Python Machine Learning for Beginners, M. Usman Malik, AI Publishing.

Reference Books:

1. Introduction to Machine Learning with Python, Daniel Nedal& Peters Morgan, AI Sciences
2. Data Structures and Algorithms Using Python, Rance D. Necaie, WILEY

Course Outcomes [After undergoing the course, students will be able to:]

1. Remember the basic concepts of Machine Learning.
2. Able to perform Data Analysis in Machine Learning.
3. Remember the Machine Learning algorithms.
4. Able to perform Machine Learning model diagnosis and tuning.
5. Apply the concept of Artificial Neural Networks.



"A GPS-Based Attendance System for Institution: A Student-Centric Approach"

A Thesis submitted to

Chhattisgarh Swami Vivekananda Technical University

Bhilai (India)



For fulfillment of the award of the Degree

Bachelor of Technology

in

Computer Science & Engineering

By

Rishabh Parth Choudhary

Priyashu Sahu

Vinayak Shivankar

Enrollment No: BH3547

Enrollment No: BH3542

Enrollment No: BH3560

Roll No: 301202219025

Roll No: 301202219020

Roll No: 301202219038

Under the Guidance of

Ms. Sonam Ram

Asst. Professor, Department of Computer Science & Engineering, RITEE



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR

Chhatana, Mandir Hasaud, Raipur(CG) India - 492 101

Phone: 91-0771-3250790, 3208842, Fax: 91-0771- 2537 634

E-mail: contactus@rit.edu.in, Website: www.rit.edu.in



SESSION: 2019-2023



CERTIFICATE BY THE EXAMINER

This is to certify that the project work entitled "A GPS-Based Attendance System for Institution: A Student-Centric Approach" Submitted by Rishabh Parth Choudhary, Priyanshu Sahu, Vinayak Shivankar have been completed under the guidance of Mrs. SONAM RAM, Asst. Professor, Department of Computer Science & Engineering, Columbia Institute Of Engineering , Raipur (CG) has been examined by the undersigned as a part of the examination for the award of **B.TECH** degree in **Computer Science** branch in Raipur Institute Of Technology , Raipur of **Chhattisgarh Swami Vivekanand Technical University, Bhilai(CG)**.


Internal Examiner

Date: 12-6-2023


External Examiner

Date: 12/06/2023


12-06-2023

(Signature of the Principal with seal)

Principal

(Raipur Institute of Technology, Raipur(C.G.))



ABSTRACT

This paper presents a novel mobile attendance system for students and teachers. The system is designed to improve the efficiency and accuracy of attendance tracking. The system is composed of three components: a teacher app, a student app, and a website. The teacher app allows teachers to create classes and add students to them. The student app allows students to check in to class and view their attendance history. The website allows teachers and students to view attendance data for all classes. The system has several advantages over traditional attendance systems. First, it is easy to use for both teachers and students. Second, it provides real-time data on attendance, which allows teachers to identify students who are struggling to attend class. Third, it is affordable and can be used by schools of all sizes. The system was also found to be easy to use and affordable. The mobile attendance system described in this paper is a promising new tool for improving attendance in schools. The system is easy to use, effective, and affordable.

Index Terms - Android app, Mobile Attendance System Attendance Tracking, Real-time Data



Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.)

Program / Semester: B.Tech (VI)	Branch: Computer Science & Engineering
Subject: Web Technologies (Professional Elective-II)	Course Code: C022631(022)
Total / Minimum-Pass Marks (End Semester Exam): 100 / 35	L: 2 T: 1 P: 0 Credits: 3
Class Tests & Assignments to be conducted: 2 each	Duration (End Semester Exam): 03 Hours

UNIT-I

Introduction to WWW: Protocols and programs, Internet Protocol -TCP/IP, UDP, HTTP, Secure Http(http), secure connections, application and development tools, the web browser, what is server, choices, setting up UNIX and Linux web servers, Domain Name Server and IP Addresses, dynamic IP

Web Design: Web site design principles, planning the site and navigation

UNIT-II

HTML: Planning for designing Web pages, Model and structure for a Website, Developing Websites, Basic HTML using images links, Lists, Tables and Forms, Frames for designing a good interactive website

CSS: Introduction Cascading Style Sheets: Syntax, Class Selector, Id Selector, External Style Sheets, Internal Style Sheets, Inline Style, the class selector, div & span tag, introduction to AJAX, ajax based web application

UNIT-III

JAVA SCRIPT: Programming Fundamentals, Statements, Expressions, Operators, Popup Boxes, Control Statements, Try.... Catch Statement, Throw Statement, and Objects of JavaScript: Date object, array object, Boolean object, math object

Advance Script: HTML DOM, inner HTML, Dynamic HTML (DHTML), DHTML form, forms and validations

UNIT-IV

XML & JSON: Introduction to XML, uses of XML, simple XML, XML key components, DTD and Schemas, Well formed, using XML with application.XML, XSL and XSLT. Introduction to JSON, JSON syntax, Datatypes, objects and JSON parse

Ajax: Introduction, AJAX request, AJAX Response, AJAX XML File

UNIT-V

PHP: Starting to script on server side, Arrays, function and forms, advance PHP

Databases: Basic command with PHP examples, Connection to server, creating database, selecting a database, listing database, listing table names creating a table, inserting data, altering tables, queries, deleting database, deleting data and tables, PHP myadmin and database bugs.

Text Books:

1. Jeffrey C.Jackson, "Web Technologies--A Computer Science Perspective", Pearson Education
2. Web Warrior Guide to Web Design Technologies, Don Gosselin, Joel Sklar& others, Cengage Learning
3. Web Technologies, Black Book, DreamTech Press

Reference Books:

1. Web Technology and Design by Xavier, C, New Age International
2. HTML, DHTML, Java Script, Perl & CGI by Ivan Bayross, BPB Publication.
3. Internet and Web Design by Ramesh Bangia, New Age International
4. Web Technology: A developer perspective, Gopalan&Akilandeswari, PHI



"PLACEMENT DRIVE NOTIFICATION"

A Thesis submitted to
Chhattisgarh Swami Vivekananda Technical University
Bhilai (India)



For fulfillment of the award of the Degree
Bachelor of Technology

in
Computer Science & Engineering

By

Anjali Saha	Juhi Kumari	Ravindra Paswan	Pratham Bhoi
Enrollment No: BH3525	Enrollment No: BH3531	Enrollment No: BH3546	Enrollment No: BH1634
Roll No: 301202219003	Roll No: 301202219009	Roll No: 301202219024	Roll No: 301202219068

Under the Guidance of

Ms. Sonam Ram

Asst. Professor, Department of Computer Science & Engineering, RITEE



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Chhatrauna, Mandir Hasaud, Raipur(CG) India - 492 101

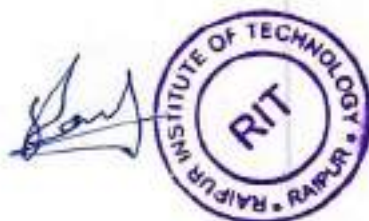
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E-mail: contactus@rit.edu.in, Website: www.rit.edu.in



SESSION: 2019-2023

1 | Page



CERTIFICATE BY THE EXAMINER

This is to certify that the project work entitled "Placement Drive Notification" Submitted by Anjali Sahu, Juhl Kumari, Ravindra Paswan, Pratham Bhoi have been completed under the guidance of Ms. Sonam Ram, Asst. Professor, Department of Computer Science & Engineering, Raipur Institute Of Technology, Raipur (CG) has been examined by the undersigned as a part of the examination for the award of B.TECH degree in Computer Science branch in Raipur Institute Of Technology, Raipur of Chhattisgarh Swami Vivekanand Technical University, Bilai (CG).

"Project Examined and Approved"


Internal Examiner

Date: 12-06-2023


External Examiner

Date: 12/06/2023

(Signature of the Principal with seal)


Principal

(Raipur Institute of Technology, Raipur(CG))

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Abstract:

"PLACEMENT DRIVE" is a web-based information system designed to automate and streamline the training and placement processes in educational institutions. The system aims to reduce manual labor while improving abstraction, security, and performance. By leveraging advanced database management techniques, it provides a centralized online resource that supports both the administration and students in all aspects of campus hiring.

"PLACEMENT DRIVE" is a web-based system that automates training and placement processes, improving efficiency and reducing manual labor. It stores and analyzes student profiles, job opportunities, and company details while enhancing security and enabling seamless communication. This system revolutionizes training and placement management, saving time and resources. Its primary goal is to automate practices at our college, boosting abstraction, security, and performance. "PLACEMENT DRIVE" supports the administration and students in all aspects of campus hiring, simplifying processes and fostering strategic activities. It brings convenience, transparency, and success to the campus hiring process.

Index Terms - Notice, databases, students, eligibility, online training and placement management system



Program / Semester: B.Tech (VI)	Branch: Computer Science & Engineering
Subject: Software Engineering & Project Management	Course Code: C022612(022)
Total / Minimum-Pass Marks (End Semester Exam): 100 / 35	L: 3 T: 1 P: 0 Credits: 4
Class Tests & Assignments to be conducted: 2 each	Duration (End Semester Exam): 03 Hours

UNIT I: Introduction to software engineering and project management -Introduction to Software Engineering: Software, Evolving role of software, Three "R"-Reuse, Reengineering and Retooling, An Overview of IT Project Management: Define project, project management framework, The role of project Manager, Systems View of Project Management, Stakeholder management, Project phases and the project life cycle. Software Process Models- Waterfall Model, Evolutionary Process Model: Prototype and Spiral Model, Incremental Process model: Iterative approach, RAD, JAD model, Concurrent Development Model, Agile Development: Extreme programming, Scrum.

UNIT II : Software Requirement Analysis and Specification : Types of Requirement, Feasibility Study, Requirement Analysis and Design: DFD, Data Dictionary, HIPO Chart, Warnier Orr Diagram, Requirement Elicitation: Interviews, Questionnaire, Brainstorming, Facilitated Application Specification Technique (FAST), Use Case Approach. SRS Case study, Software Estimation: Size Estimation: Function Point (Numericals). Cost Estimation: COCOMO (Numericals), COCOMO-II (Numericals). Earned Value Management

UNIT III: Software Project Planning : Business Case, Project selection and Approval, Project charter, Project Scope management: Scope definition and Project Scope management, Creating the Work Breakdown Structures, Scope Verification, Scope Control, Project Scheduling and Procurement management- Relationship between people and Effort: Staffing Level Estimation, Effect of schedule Change on Cost, Degree of Rigor & Task set selector, Project Schedule, Schedule Control, CPM (Numericals), Basic Planning Purchases and Acquisitions, Planning Contracting, Requesting Seller Responses, Selecting Sellers, Out Sourcing: The Beginning of the outsourcing phenomenon, Types of outsourcing relationship, The realities of outsourcing, Managing the outsourcing relationship.

UNIT IV :Software Quality : Software and System Quality Management: Overview of ISO 9001, SEI Capability Maturity Model, McCalls Quality Model, Six Sigma, Formal Technical Reviews, Tools and Techniques for Quality Control, Pareto Analysis, Statistical Sampling, Quality Control Charts and the seven Run Rule. Modern Quality Management, Juran and the importance of Top management, Commitment to Quality, Crosby and Striving for Zero defects, Ishikawa and the Fishbone Diagram.

UNIT V : Human Resource Management: Human Resource Planning, Acquiring the Project Team: Resource Assignment, Loading, Leveling, Developing the Project Team: Team Structures, Managing the Project Team, Change management: Dealing with Conflict & Resistance Leadership & Ethics. Software Risk Management and Reliability issues- Risk Management: Identify IT Project Risk, Risk Analysis and Assessment, Risk Strategies, Risk Monitoring and Control, Risk Response and Evaluation. Software Reliability: Reliability Metrics, Reliability Growth Modelling

Text Books:

1. Software Engineering, 5th and 7th edition, by Roger S Pressman, McGraw Hill publication.
2. Managing Information Technology Project, 6edition, by Kathy Schwalbe, Cengage Learning publication.
3. Information Technology Project Management by Jack T Marchewka Wiley India publication.

Reference Books:

1. Software Engineering 3rd edition by KK Agrawal, Yogesh Singh, New Age International publication.
2. Software Engineering Project Management by Richard H. Thayer Wiley India Publication
3. Software Engineering for students: A Programming Approach by Douglas Bell, Pearson publication.

Course Outcomes [After undergoing the course, students will be able to:]

1. To understand and conceptualize the process of Software Development Life Cycle (SDLC) models.
2. Apply use of knowledge of Software Life Cycle to implement the projects successfully in the corporate world.



"RAM ZONE ONLINE SHOPPING SYSYTEM"
A Major Project submitted to
Chhattisgarh Swami Vivekananda Technical University
Bhilai (India)



For fulfillment of the award of the Degree
Bachelor of Technology

in
Computer Science & Engineering
By

RAMESHWAR

Enrollment No: BH3631

Roll No: 301202219087

Under the Guidance of

Ms. Rajesbri Lanjwar

Assl. Professor, Department of Computer Science & Engineering, RITEE



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Chhatagana, Mandir Hazaud, Raipur(CG) India - 492 101

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E-mail: contactus@rit.edu.in, Website: www.rit.edu.in



SESSION: 2019-2023



CERTIFICATE BY THE EXAMINER

This is to certify that the project report entitled "Ram Zone Online Shopping System" which is submitted by

Rameshwar, Roll No. 301202219087, Enrollment No.: BH3631

Has been examined by the undersigned as a part of the examination for the award of the degree of Bachelor of Technology in Semester Computer Science & Engineering from Chhattisgarh Swami Vivekanand Technical University, Bilai.



(Signature of Internal Examiner)

Mr. Vivek Sinha

(Name of the Internal Examiner)

Date: 12/06/23

Designation: Asst. Prof., HOD

Institute: RIT - Raipur



(Signature of the External Examiner)

Mrs. Pooja Leela

(Name of the External Examiner)

Date: 12/06/23

Designation: Asst. Prof.

Institute: BET - Raipur



ABSTRACT

The Online Shopping Portal (Ram Zone) is developed according the current need in different fields. This Online Shopping (Ram Zone) website provides facility for purchasing Mobile, Laptop, Cloths, Camera and many more items by using this Online Shopping portal users which want to purchase some products will first register an account on this portal then Login through their Username and Password and then select items which they want to purchase and add them to cart and finally checkout by giving payments details. So by using this portal users can easily purchase products from their home.



1. Design a data warehouse for an organization
2. Develop skills to write queries using DMQL
3. Extract knowledge using data mining techniques
4. Adapt to new data mining tools.
5. Explore recent trends in data mining such as web mining, spatial-temporal mining.

Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.)

Program / Semester: B.Tech (VII)	Branch: Computer Science & Engineering
Subject: Internet and Web Technology	Course Code: D022713(022)
Total / Minimum-Pass Marks (End Semester Exam): 100 / 35	L: 2 T: 1 P: 0 Credits: 3
Class Tests & Assignments to be conducted: 2 each	Duration (End Semester Exam): 03 Hours

Course Objectives

1. Describe the important features of the Web and Web browser software
2. Evaluate e-mail software and Web-based e-mail services
3. Use FTP and other services to transfer and store data
4. Demonstrate the use of real-time chat and briefly describe the history of the wireless Internet
5. Create HTML documents and enhance them with browser extensions



**Click to Eat with Mess Facility
(Food Order)**

A Major Project Submitted to
Chhattisgarh Swami Vivekanand Technical University
Bhilai (C.G.), India



For fulfillment of the award of Degree
Bachelor of Technology

In

Computer Science and Engineering

By

Rahul Sahu

Enrollment No. BH1636

Roll No: - 301202219052

Unima Sahu

Enrollment No. BH1628

Roll No: - 301202219063

Sagar Sahu

Enrollment No. BH1638

Roll No: - 301202219060

Under the guidance of

Mr. Vivek Kumar Sinha

Asst.Prof., Department of CSE, RITEE Raipur (C.G.)

Department of Computer Science & Engineering

Raipur Institute of Technology Raipur,

Chhattauna Mandir Hasaud, Raipur (CG)- 492001

Phone: 91-0771-3250790, 3208842, Fax: 91-0771- 2537 634

E-mail: contactus@rit.edu.in, Website: www.rit.edu.in

SESSION:- 2022-23





RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR(C.G.)

Department of Computer Science and Engineering

Chhatauna, MandirHasaud, Raipur, (C.G.)

CERTIFICATE BY THE EXAMINERS

The Thesis entitled '**Click to Eat with Facility**' submitted by **Rahul Sahu** (Roll No.: 301202219052 Enrollment No.: BH1636), **Linima Sahu** (Roll No.: 301202219063 Enrollment No.: BH1628), **Sagar Sahu** (Roll No.: 301202219060 Enrollment No.: BH1638) has been examined by the undersigned as a part of the examination and is hereby recommended for the award of the degree of Bachelor of Technology in Computer Science and Engineering of Chhattisgarh Swami Vivekanand Technical University, Bilai.


Internal Examiner
Date: 12.06.23


External Examiner
Date: 12/06/23



ABSTRACT

The purpose of Click to Eat is to automate the existing manual system by the help of computerized equipment's and full-fledged computer software, fulfilling their requirements 'so that their valuable data information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with.

The Click to Eat main purpose is to maintain track of information such as Item Category, Food, Delivery Address, Order. It keeps track of information about the Item Category, the Customer and the Item Category. Only the administrator gets access to the project because it is totally built at the administrator level. The project's purpose is to develop software that will cut down on the time spent manually managing Item Category, Food, Customer and Delivery Address. It saves the Delivery Address, Order.

The food industry has always been profitable industry not only for manufacturers, suppliers, but also for User, distributor. online food delivery system needed of hours due to recent changes in the industry and increasing use of internet. A Real-time online food ordering system for the customer is our proposed system. The traditional queueing system drawbacks and disadvantages are overcome by our system application food can be ordered online in a hassle-free manner through our offered system from restaurants as well as mess services. Improve our system application in ways to take food order from customer. A food menu has been set up online and customers can easily place their orders through the proposed system as per their wish. Also, customer can easily track order food menu.

Food can be ordered online in a hassle-free manner through our offered system from restaurant as well as mess services. Meal order taking methods from the customer improves our system application. A food menu is set up online and according to their wishes customers can easily



A
Major Project Report
on
TRANSFORMER SAFETY DEVICE WITH ARDUINO

Submitted To



CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)

Submitted in partial fulfilment of requirement for the award of degree

of

Bachelor of Technology

in

ELECTRICAL & ELECTRONICS ENGINEERING

By

MUKESH MEHTA
SHALINI THAKUR
HUMAIRA KHAN
LUKESHWAR KUMAR SAHU

Under the esteemed guidance of

Mr. Uma Shankar Patel
Assistance Professor
EEE Department, RITEE



DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Chhatauna, Mandir Hasaud, Raipur, Chhattisgarh
Ph.: 0771-9522292121, 0771-4036053
Email: contactus@rit.edu.in

Session: 2022-2023



CERTIFICATE

This is to certify that the report of the project entitled **"TRANSFORMER SAFETY DEVICE WITH ARDUINO"** is a record of project work carried out by

Mukesh Mehta	301202520300	BJ0624
Shalini Thakur	301202520302	BE0162
Humaira Khan	3122507021	AC0727
Lukeshwar Kumar Sahu	301802519001	BH4827

under my guidance and supervision for the award of Degree of Bachelor of Technology in Electrical & Electronics branch of Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.), India.

To the best of my knowledge and belief the report

- Embodies the work of the candidate themselves,
- Has duly been completed,
- Fulfills the requirement of the Ordinance relating to the BE degree of the University and
- Is up to the desired standard both in respect of contents and language for being referred to the examiners.


Dr. Ritesh Diwan
HOD EEE Department
RITEE, Raipur


Mr. Umashankar Patel
Assistant Professor
RITEE, Raipur



ABSTRACT

The reliable operation of transformers is crucial for the smooth functioning of electrical power systems. However, overcurrent conditions can pose a significant threat to the integrity and lifespan of transformers, potentially leading to catastrophic failures and disruptions in power supply. In this project, we propose an automatic overcurrent protection system for transformers to mitigate these risks. The system utilizes advanced sensing and control techniques to detect and respond to overcurrent events in real-time. By incorporating a combination of current sensors, microcontrollers, and intelligent algorithms, the system accurately identifies overcurrent conditions and initiates protective actions, such as tripping circuit breakers or activating fault isolation mechanisms. Through extensive testing and evaluation, the proposed system demonstrates reliable and efficient performance in detecting and mitigating overcurrent events. This project contributes to enhancing the safety and reliability of transformer operations, providing a valuable solution for the prevention of transformer damage and associated power disruptions.

This project presents the development and implementation of an automatic overcurrent protection system for transformers using Arduino Uno, a timer circuit, relays with DC load, a 16-digit display, a rectifier circuit, and a transformer. The system aims to safeguard transformers from overcurrent conditions, which can lead to severe damage and operational disruptions. The proposed system employs current sensors to monitor the electrical current flowing through the transformer and triggers protective actions when overcurrent events are detected. The Arduino Uno microcontroller serves as the control unit, utilizing its programmability and interfacing capabilities to receive current readings, process data, and activate the appropriate response mechanism. A timer circuit is integrated to ensure a reliable and timely reaction to overcurrent situations. The relays, in conjunction with the DC load, are employed to interrupt the power supply to the transformer and prevent further damage. The 16-digit display provides real-time feedback on the system status, allowing operators to monitor the protection process. Additionally, a rectifier circuit is utilized to convert AC input to DC for powering the control and display components. Through comprehensive testing and evaluation, the developed system demonstrates accurate and effective overcurrent protection for transformers, enhancing their safety and operational reliability. This project showcases the practical application of Arduino Uno and various supporting circuits in a critical power system component, offering a valuable solution for the prevention of transformer damage and ensuring uninterrupted power supply.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: **Electrical Engineering**

Semester: **VI**

Subject: **Microcontroller and Embedded System(Professional Elective-II)** Code: **C024632(024)**

Periods per week (L-T-P): **(2-1-0)**

Credits: **03**

Number of class Test to be conducted: **2 (Minimum)**
be submitted: **02(Minimum)**

No. of assignment to

Scheme of Examination (Theory): **Total Marks-150 [ESE-100, CT-20, TA-30]**

COURSE OUTCOMES:After successful completion of this course, the student will able to:

Course Code	CO Statement	Knowledge Level
1	Compare elements of Microcontroller family, and understand pin configuration of 8051	2
2	Interpret the architecture, various instructions and their application in programming of microcontroller 8051	2
3	Apply the knowledge of counters and interrupts to make programs for external interrupts	3
4	Illustrate different Protocols of serial communication in microcontroller 8051	2
5	Explain different categories, requirements and applications of embedded system	2

COURSE DETAILS:

UNIT I Introduction to Microcontroller: A brief History of Microcontrollers, Harvard Vs Von-Neumann Architecture, RISC Vs CISC, Classification of MCS-51 family based on their features (8051, 8052, 8031, 8751, AT89C51), Pin configuration of 8051

UNIT II 8051 Processor Architecture and Instruction Set: Internal block diagram, Registers of 8051, Inbuilt RAM, Register banks, stack, on-chip and external program code memory ROM, power reset and clocking circuits, I/O port structure, Addressing modes, Instruction set and simple programming

UNIT III Counter/Timer and Interrupts of 8051: Introduction, Registers of timer/counter, Different modes of timer/counter, Timer/counter programming, Interrupt Vs Polling, Types of interrupts and vector addresses, register used for interrupts initialization, programming of external interrupts, Timer interrupts.

UNIT IV Asynchronous Serial Communication: Introduction to serial communication, Types, RS232 standard, RS422 Standard, 1488 and 1489 standard, GPIB, Max 232/233 Driver

UNIT V Overview of Embedded System: Embedded System, Categories of Embedded System, Requirements of Embedded Systems, Challenges and Issues in Embedded Software Development, Applications of Embedded Systems in Consumer Electronics, Control System, Biomedical Systems, Handheld computers, Communication devices.

Name of Text Books:

1. The 8051 Microcontroller and Embedded Systems using Assembly and C, Mazidi, Mazidi & McKinlay, 2nd Ed., PHI.
2. The 8051 Microcontroller", Kenneth J. Ayala, 3rd Edition, Thomson/Cengage Learning.

Name of Reference Books:

1. Microcontrollers: Architecture, Programming, Interfacing and System Design, Rajkamal, Pearson Education
2. Programming for Embedded Systems- Dreamtech Software Team, Wiley Dreamtech
3. Programming and Customizing the 8051 Microcontroller. Predko: TMH



A

Major Project Report

On

IOT BASED SMART PLANT IRRIGATION SYSTEM

Submitted to



**CHHATISHGARH SWAMI VIVEKANAND TECHNICA UNIVERSITY,
BHILAI(C.G.)**

In partial fulfilment of requirement for the award of degree

Of

Bachelor of Technology

In

Electronics & Telecommunication Engineering

By

Ayushi Patle	Roll No. 301202819005 Enrollment No. BH3092
Daulat Sahu	Roll No. 301202819006 Enrollment No. BH3093
Devprakash sahu	Roll No. 301202819007 Enrollment No. BH3094
Manish Kumar Sinha	Roll No. 301202820301 Enrollment No. AP8662

Under The Guidance of

Mr. Tikeswar Galpal Assistant Professor

ET&T Engineering

RITEE, Raipur (C.G.)



Department of Electronics & Telecommunication Engineering

RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR

Chhatauna Mandir Hasaud, Raipur Chhatishgarh

Ph: 07713208842, 3250790 Fax: 0771-2537634

Email: contactus@rit.edu.in



CERTIFICATE

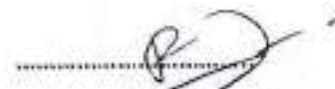
This is to certify that the report of project " **IOT BASED SMART PLANT IRRIGATION SYSTEM**" is a record of project work carried out by

Ayushi Patle	Roll No. 301202819005	Enrollment No. BH3092
Daulet Sahu	Roll No. 301202819006	Enrollment No. BH3093
Devprakash sahu	Roll No. 301202819007	Enrollment No. BH3094
Manish Kumar Sinha	Roll No. 301202820301	Enrollment No. AP8662

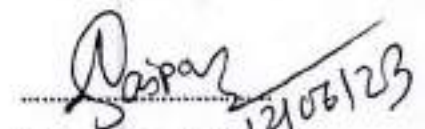
Under my guidance and supervision for the award of degree of Bachelor of Engineering in Electronics and Telecommunication branch of Chhatishgarh Swami Vivekanand Technical University, Bhilai(C.G.)

To the best of our knowledge and belief the report

- I. Embodies the work of candidate themselves
- II. Fulfills the requirement of ordinance relating to the B.Tech degree of university and
- III. Is up to the desired standard both in respect of contents and language for being referred to the examiners.


(Signature of HOD)

Dr. Ritesh Diwan


(Signature of Guide)

Mr. Tikeshwar Gajpal



Abstract

The project is about **IOT BASED SMART PALNT IRRIGATION SYSTEM**. To serve the humanity nowadays technology is playing a wonderful role and a man's basic and primary need is food indeed. It can be said that about more than 85% of people of Bangladesh are directly, indirectly depended on agriculture. Proper irrigation by water pump cannot be maintained due to frequent power outages, unavailability of grid lines in remote areas and scarcity/cost of fuel to run pumps. To make the sustainable irrigation system and field monitoring system for getting better crops growth as well as best production, this IOT based Automatic irrigation system is proposed. In this system IOT and WSN are used to control and monitor the irrigation system. IOT is used to obtain stored data monitoring and real time monitoring of various contents of soil, WSN is used to make a fully wireless system to make a user-friendly system to cultivate and irrigate water properly to the field. Different kinds of sensors are used. This report presents a fully automated drip irigaion system which is controled and monitored by using 'Thinkspeak Cloud Server'. Temperature and the humidity content of the soil are frequently monitored. The system informs user about any abnormal conditions like less moisture content and temperature rise, even concentration of water by sending notifications through the wireless module.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of Program:	Bachelor of Technology.		
Branch:	Electronics & Telecommunication	Semester:	VII
Subject:	Instrumentation & IoT	Code:	D028712(028)
Total Theory Periods:	40	Total Tutorial Periods:	Ten (Minimum)
Class Tests:	Two (Minimum)	Assignments:	2 (Minimum)
ESE Duration:	Three Hours	Max Marks:100	Min Marks: 35

Course Objectives:

The course intends to provide an overview of the principles, operation and application of the different transducer and sensors like, Resistive, Inductive and capacitive transducers, Piezo-electric transducers and photo electric transducers. And to equip the students with the basic and advanced knowledge of Pressure, Temperature, flow and optical measurements.

The course also intends to understand about the fundamentals of Internet of Things and its building blocks along with their characteristics & understand the protocols and standards designed for IoT and the current research on it. & to understand the recent application domains of IoT in everyday life

UNIT I	Introduction to Sensors & Transducer: Transducer definition, classification, and Static and Dynamic performance characteristics of Transducer, selection criteria for sensors, Resistive: Piezo-resistive effect, Basics of Strain Gauge, Inductive: LVDT, RVDT, Capacitive: Differential capacitance cell.
UNIT II	Pressure and Photoelectric Sensor: Pressure Measurement: Terminology, pressure units, manometers- U-tube Single and double column, elastic pressure transducer: Bourdon Tube, Dead weight piston gauge, Piezoelectric transducer, photoelectric transducer: Photoconductive cell, Photo emissive cell and Photo Voltaic Cell
UNIT III	Thermal and Flow Sensor: Temperature Measurement: Temperature scales units and relations, Bimetallic thermometer, Resistance thermometers, Thermocouple: Its types & characteristics, Thermistor, radiation & optical pyrometers Flow Sensors: Theory of variable head meters, constructional details of variable head meters- Venturimeter, Flow Nozzle, Orifice flow meter, Pitot tube, Ultrasonic flow meter.
UNIT IV	Introduction to Internet of Things: Introduction to Internet of Things: Overview of Internet of Things- the Edge, Cloud and the Application Development, Industrial Internet of Things (MOT - Industry 4.0), Quality Assurance, Predictive Maintenance, Real Time Diagnostics, Design and Development for IOT, Understanding System Design for IOT, Design Model for IOT.
UNIT V	Understanding Internet Protocols & Domain specific IOT: Simplified OSI Model, Network Topologies, Standards, Types of Internet Networking - Ethernet, WiFi, Local Networking, Bluetooth, Bluetooth Low Energy (BLE), Zigbee, 6LoWPAN, Sub 1 GHz, RFID, NFC, Proprietary Protocols, Simplicity, Networking Design - Push, Pull and Polling, Network APIs. Domain specific IOT and their challenges: Illustrated domains-home automation, smart cities, health and



**"DESIGN OF FULLY MANUAL PNEUMATIC
SHEET BENDING MACHINE"**

A Thesis Submitted to

**CHHATTISGARH SWAMI VIVEKANAND
TECHNICAL UNIVERSITY BHILAI (C.G.), INDIA**



**In the partial fulfillment
For the award of the degree of
BACHELOR OF TECHNOLOGY**

**In
MECHANICAL ENGINEERING**

by

ABHISHEK KUMAR Roll No.301203720306

Enrollment No. BB9038

ASHISH CHANDRA BEHERA ROLL No.301203720307

Enrollment No. BB9054

MD HARUN KHAN Roll No.301203720309

Enrollment No. BB9052

YAMAN KUMAR DESHMUKH Roll No.301203720311

Enrollment No. BB9060

Under the supervision and guidance of

Mr. Ashwini Bhoi

(Assistant Professor)

Department of Mechanical Engineering



**DEPARTMENT OF MECHANICAL ENGINEERING
RAIPUR INSTITUTE OF TECHNOLOGY
Chhatauna, Mandir Hasaud, Raipur (C.G.) 492101**

Session: 2022-23

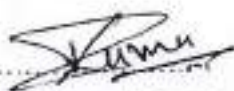


CERTIFICATE OF THE SUPERVISOR

This is to certify that the report of the thesis entitled "**Design Of Fully Manual Pneumatic Sheet Bending Machine**" is a record of bonafide research work carried out by ABHISHEK KUMAR (301203720306) Enrollment No. BB9038
ASHISH CHANDRA BEHERA (301203720307) Enrollment No. BB9054
MD HARUN KHAN (301203720309) Enrollment No. BB9052
YAMAN KUMAR DESHMUKH (301203720311) Enrollment No. BB9060 under my guidance and supervision for the award of Degree of Bachelor of Technology in the faculty of Chhattisgarh Swami vivekanand Technical University, Bhilai (C.G.) India.

To the best of our knowledge and belief the thesis

- Embodies the work of the candidates him
- Has duly been completed,
- Fulfills the requirement of the Ordinance relating to the B.Tech degree of the University and
- Is up to the desired standard both in respect of contents and language for being referred to the examiners.



Dr. Rajeshwar Verma

Head of Department

Department of Mechanical Engg.

Raipur Institute of Technology, Raipur



Mr. Ashvini Bhoi

(Supervisor)

Asst. Professor

Raipur Institute of Technology, Raipur

Forwarded to Chhattisgarh Swami Vivekanand Technical University, Bhilai



PRINCIPAL

RAIPUR INSTITUTE OF TECHNOLOGY

CHHATAUNA, MANDIR HASAUD, RAIPUR (C.G.)

Chhatauna, Mandir Hasaud, Raipur



ABSTRACT

This project thesis aims to design and develop a fully manual pneumatic sheet bending machine for efficient and precise bending operations in the sheet metal fabrication industry. The machine combines the advantages of manual control with the power of pneumatic technology to provide a cost-effective and versatile solution for bending various metal sheets and components.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: Bachelor of Technology	Semester: VI
Branch: Mechanical Engineering	Code: C037611(037)
Subject :Design of Machine Elements	Total Tutorial Periods: 01
Total Theory Periods: 03	Maximum Marks: 100
Class Tests: Two (Minimum)	Minimum Marks: 35
Assignments: Two (Minimum)	ESE Duration: Four Hours

Course Objectives: The objective of this course is to teach students how to apply the concepts of stress analysis, theories of failure and material science analyze/ design commonly used machine components.

UNIT-I	General Considerations: Selection of Materials, Design Stress, Factor of Safety, Stress concentration factor, intension, bending and torsion, theories of failures. Notch sensitivity, design stress for variable and repeated loads, fatigue stress concentration factor, endurance diagrams.
UNIT-II	Mechanical Joints: Design of socket pigot cotter joint, design of sleeve and cotter joint, design of Knuckle joint. Keys and Splines: Types of keys, design of keys, design of splines. Couplings: Types of couplings, design of flange and flexible couplings, compression coupling, muff coupling.
UNIT-III	Shafts and Axles : Transmission shaft, Design against static load, Design for strength, rigidity and stiffness, design under continuous loading for fatigue. Clutches: Friction clutches, Friction materials, Torque transmitting capacity, Single & Multiple plate clutch, centrifugal clutches.
UNIT-IV	Threaded Fasteners: Geometry of thread forms, terminology of screw threads and thread standards, specifications of steel bolts, initial tension, and relation between bolt tension and torque, design of statically loaded tension joints, design of bolted joints due to eccentric loading. Power Screws: Power screws, Force analysis-square and trapezoidal threads, Collar friction, Stresses in screw, coefficient of friction, efficiency of thread.
UNIT-V	Riveted Joints: Types of rive threads, types of riveted joints, failure of riveted joint, strength of rivet joint, efficiency of riveted joint, design of riveted joint for boiler. Welded Joints: Types of welded joints, stresses in butt and fillet welds, strength of welded joints, location and dimension of weld design, eccentrically loaded joint, welded joint subjected to bending moment, design procedure, fillet weld under varying loads, stress relieving techniques.
Text Books:	
1.	Design of Machine Elements-V.B.Bhandari- TMH, New Delhi
2.	Mechanical Engineering Design-Shigley- McGrawHill, Delhi



A

Major Project Report On

"FABRICATION OF IMPACT OF JET"

Submitted to

Chhattisgarh Swami Vivekanand Technical University, Bhilai, (C.G.), India

In Partial Fulfilment of the award of the Degree of



BACHELOR OF TECHNOLOGY

In

MECHANICAL ENGINEERING

Submitted by:

KHUMESH	BH2632	301203719
NISHAD		005
SANTOSH KUMAR	BH2633	301203719
		006
OMPRAKASH	BH4294	301203719
NISHAD		011
NIRMAL	BH4293	301203719
PRADHAN		013

Under the supervision and guidance of
MR. ASHWIN BHOI
(Head) Department of Mechanical Engineering
RITEE , Raipur (C.G.)



RAIPUR INSTITUTE OF TECHNOLOGY (RITEE) RAIPUR

Chhatauna, Mandir Hasaud Raipur (C.G.) India
492101 Ph. No.- 93297 73006 | 93297 73026

Email- info@rit.edu.in, Website:- <https://rit.edu.in/>

SESSION-2022-23



CERTIFICATE OF THE SUPERVISOR

This is to certify that the project work entitled "FABRICATION OF IMPACT OF JET" is a record of bonafide research work carried out by us. **Khumesh Nishad, Santosh Kumar, Nirmal Pradhan, Omprakash Nishad** Under the guidance and supervision for the award of Degree of Bachelor of Technology in Mechanical under the faculty of **MR. ASHWIN BHOI**, of Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.), India.

To the best of my knowledge and belief the thesis

- Embodies the work of the candidate him/herself,
- Has duly been completed,
- Is up to the desired standard both in respect of contents and language for being referred to the examiners

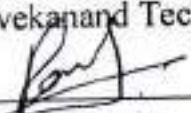

(Signature of the Supervisor)

Name: **MR. ASHWIN BHOI**

Department: **Mechanical Engineering**

Name & Address of the Institute/Organization: **RITEE Raipur**

Forwarded to Chhattisgarh Swami Vivekanand Technical University Bhilai


(Signature of the Director/Principal) Name & Address of the Institute

RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)



ABSTRACT

The "Impact Jet of Vanes" is a project that aims to investigate the fluid dynamics of a jet of fluid impacting on a set of stationary vanes. This project is motivated by its potential applications in various industrial processes, such as the mixing of fluids or the enhancement of heat transfer rates.

The objective of this project is to experimentally study the effect of vane geometry and jet velocity on the flow field and turbulence characteristics of the impact jet. The experiments will be conducted in a test rig consisting of a nozzle that produces a high-velocity jet of water, which impacts on a set of vanes arranged in different configurations.

The experimental results will be analyzed using advanced flow visualization techniques and turbulence measurement methods. The data obtained from the experiments will be used to develop models and correlations that can be used to predict the performance of impact jet systems under various operating conditions.

The expected outcome of this project is to provide insights into the complex fluid dynamics of impact jets and to develop design guidelines for the optimal configuration of vanes in impact jet systems. This knowledge can be used to improve the efficiency and effectiveness of various industrial processes that use impact jet technology.



Chhattisgarh Swami Vivekanand Technical University, Bhilai	
Name of program: Bachelor of Technology	Semester: IV
Branch: Mechanical Engineering	Code: B037412(037)
Subject: Fluid Mechanics	Total Tutorial Periods: 01
Total Theory Periods: 03	Maximum Marks: 100
Class Tests: Two (Minimum)	Minimum Marks: 35
Assignments: Two (Minimum)	ESE Duration: Three Hours

Course Objectives:

The objective of the course is to develop an understanding of the behavior of fluids at rest or in motion and the subsequent effects of the fluids on the boundaries as the mechanical engineers has to deal with fluids in various applications. This enables students to apply the analytical tools to solve different types of problems related to fluid & fluid flow.

UNIT- I	Properties of fluid: Fluid, ideal and real fluid, properties of fluid : mass density, weight density, specific volume, specific gravity, viscosity, surface tension, capillarity, vapour pressure, compressibility and bulk modulus. Newtonian and non-Newtonian fluids Fluid Statics: Pressure, Pascal's law, Hydrostatic law, Manometry, Hydrostatic force on submerged plane and curved surface, Buoyancy and Flotation.
UNIT-II	Fluid Kinematics: Description of fluid motion, Lagrangian and Eulerian approach, Type of fluid flow, Type of flow lines-path line, streak line, stream line, stream tube. Continuity equation, acceleration of a fluid particle, motion of fluid particle along curved path, Normal and tangential acceleration, Rotational flow, Rotation and Vorticity, circulation, stream and potential function, flow net, its characteristics and utilities. Liquid in relative equilibrium.
UNIT- III	Fluid Dynamics: Euler's Equation, Bernoulli's equation and its practical application, Venturimeter, Orifice meter, Nozzle, Pitot tube. Impulse momentum equation, Momentum of Momentum equation, Kinetic energy and Momentum correction factor, Vortex motion, Radial flow.
UNIT- IV	Laminar Flow: Reynold's experiment, flow of viscous fluids in circular pipe, shear stress and pressure gradient relationship, Velocity distribution, Hagen-Poiseuille Equation, flow of viscous fluids between two parallel plates (Couette flow) shear stress and pressure Gradient relationship, Velocity distribution, Drop of pressure head. Turbulent flow: Effect of turbulence, Expression for loss of head due to friction in pipes (Darcy-Weisbach equation), Expression for co-efficient of friction in terms of shear stress. Flow through pipe: Loss of energy in pipes, Hydraulic gradient and total energy line, pipe in series and parallel, equivalent pipe power transmission through pipe, water hammer in pipes.
UNIT-V	Dimensional Analysis: Methods of dimensional analysis, Rayleigh's method, Buckingham's theorem, Limitations. Model analysis: Dimensionless number and their significance, model laws, Reynold's model law, Froude's model law, Euler's model law, Weber's model law, Mach's model law, Type of models, scale effect in model, limitation of hydraulic similitude.



**“ Experimental setup to determine the type of flow using
Reynolds Apparatus ”**

**A
Thesis
Submitted to**

**Chhattisgarh Swami Vivekanand Technical University
Bhilai (C.G.) India**



In the partial fulfillment of requirement for the award of the degree of

**Bachelor of Technology
In
MECHANICAL ENGINEERING
by**

VISHAL JHA	BH2636	301203719009
RAKESH KUMAR	BH4295	301203719010
DHAKESHWAR SAHU	BH2707	301203719015
LAXMIKANT KEWAT	BH2710	301203719017

**Under the supervision and guidance of
DR. RAJESHWAR VERMA
(Head) Department of Mechanical Engineering
RITEE , Raipur (C.G.)**



Raipur Institute of Technology

Chhatauna , Mandir Hasaud , Raipur (C.G.) 492101

Email:- contactsus@rit.edu.in

Website :- <http://www.rit.edu.in>

Session : 2019 — 2023



CERTIFICATE BY THE SUPERVISOR

This is to certify that the report of the thesis entitled " **Experimental setup to determine the type of flow using Reynold's Apparatus** " is the record of bonafide research work carried out by -

Name	Enroll. No.	Roll. No.
VISHAL JHA	BH2636	301203719009
RAKESH KUMAR	BH4295	301203719010
DHAKESHWAR SAHU	BH2707	301203719015
LAXMIKANT KEWAT	BH2710	301203719017

under my guidance and supervision for the award of the Degree of Bachelor of Technology in the field of Mechanical Engineering course of Chhattisgarh Swami Vivekanand Technical University Bhilai (C.G.) India.

To the best of My knowledge and belief, the thesis -

1. Embodies the work of the candidate himself.
2. Has duly been Completed.
3. Fulfills the requirement of the Ordinances to the B.Tech, Degree of the University and
4. Is up to the desired standard both in the respect of contents and language for being referred to the examiners.



Head Of Department
Mechanical Engineering

RITEE



DR. RAJESHWAR VERMA
(Supervisor)

Forwarded to Chhattisgarh Swami Vivekanand Technical
University Bhilai (C.G.)



Principle
Raipur Institute Of Technology
Mandir Hasaud, Raipur (C.G.)
PRINCIPAL

RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)



ABSTRACT

Osborne Reynolds experiment is used to investigate the characteristic of the flow of the liquid in the pipe which is also used to determine the Reynolds Number for each state of the flow. The design of the apparatus allowed studying the characteristic of the flow of the fluid in the pipe, the behavior of the flow and also to calculate the range for the laminar, transitional and turbulent flow where the calculation is used to prove the Reynolds number is dimensionless by using the Reynolds Number formula.

For the first and second objectives, it involves running the Osborne Reynolds equipment with different of water volume flow rate. In this experiment we fix the volume, which is 0.3 L amount of water while the time is recorded to obtain its volume flow rate. At the same time we also observe the characteristic of the flow, whether there are laminar, transitional or turbulent flow. From the data collected we made calculation to estimate the range for laminar, transitional and turbulent flow. To prove that the Reynolds number is dimensionless, we calculate by using the units only and using the appropriate formula. By that, it is proved that the Reynolds number is dimensionless parameter.



Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: Bachelor of Technology	Semester: V
Branch: Mechanical Engineering	Code: C037513(037)
Subject: Fluid Machines	Total Tutorial Periods: 01
Total Theory Periods: 03	Maximum Marks: 100
Class Tests: Two (Minimum)	Minimum Marks: 35
Assignments: Two (Minimum)	ESE Duration: Three Hours

Course Objectives:

The objectives of this course is to impart an understanding boundary layer concepts, principle of operation of turbines and pumps and its performance characteristic.

UNIT- I	Boundary Layer Theory : Boundary layer definition and characteristics, momentum equation, Laminar and turbulent boundary Layer, Total drag, separation and control. Flow around submerge bodies Force exerted by flowing fluid on a body: Drag and lift; stream lined and bluff body, Drag on sphere and cylinder, circulation and lift on circular cylinder, lift of an airfoil, induced drag.
UNIT-II	Impact of Free Jets: Impulse momentum principle, force exerted by the jet on stationary flat and curved plate, hinged plate, moving plate and moving curve vanes, jet propulsion of ship. Impulse Turbine: Classification of turbine, impulse turbine, Pelton wheel, Construction working, work done, head efficiency and Design aspects, Governing of impulse turbine.
UNIT- III	Reaction Turbine: Radial flow reaction turbine, Francis turbine: construction, working, work done, efficiency, design aspect, advantages & disadvantages over Pelton wheel. Axial flow reaction turbine Propeller and Kaplan turbine, bulb or tubular turbine, draft tube, specific speed, unit quantities, cavitation, degree of reaction, performance characteristics, surge tanks, governing of reaction turbine.
UNIT- IV	Centrifugal Pumps : Classification of Pumps, Centrifugal pump, Construction, working, work done, heads, efficiencies, multistage centrifugal pump, pump in series and parallel, specific speed, characteristic, net positive suction head, cavitation.
UNIT-V	Reciprocating Pumps: Classification, component and working, single acting and double acting pump, discharge, work-done and power required, slip & coefficient of discharge, indicator diagram, air vessels.

Text Books:

1.	Fluid Mechanics and Fluid Power Engineering – D.S. Kumar– Kataria & Sons-Delhi
2.	Fluid Mechanics- Yunush A Cengel, John M. Cimbala- TMH, Delhi



"MANUFACTURING OF EXPERIMENTAL COOLING TOWER"

A Thesis submitted

to

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY BHILAI (C.G.), INDIA**



**In the partial fulfillment of award of the degree
of**

BACHELOR OF TECHNOLOGY

In

Mechanical Engineering

By

Name	Roll Number	Enrolment Number
TOPESHWARI TARAK	301203719008	BH2635
VISHAL MINJ	301203719020	BH2720
ABHISHEK KUMAR BANJARE	301203719014	BH2703
SANJU KUMAR	301203720312	BA9632

Under the supervision and guidance of

Mr. Anoop Kumar

(Assistant Professor)

Department of Mechanical Engineering



**Raipur Institute of Technology
Chhatauna, Mandir Hasaud, Raipur (C.G.) 492101**

Session: 2019-23



CERTIFICATE BY THE SUPERVISOR

This is to certify that the report of the thesis entitled "**MANUFACTURING OF EXPERIMENTAL COOLING TOWER**" is a record of bonafide research work carried out by

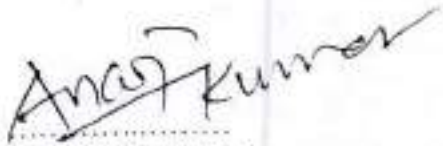
Name	Roll Number.	Enrolment No.
1. Topeshwari Tarak	301203719008	BH2635
2. Vishal Minj	301203719020	BH2720
3. Abhishek Kumar Banjare	301203719014	BH2703
4. Sanju Kumar	301203720312	BA9632

under my guidance and supervision for the award of Degree of Bachelor of Technology in the field of Mechanical Engineering, of Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.), India.

To the best of my knowledge and belief the thesis

- Embodies the work of the candidate himself,
- Has duly been completed,
- Fulfills the requirement of the Ordinance to the B.Tech. Degree of the University and
- Is up to the desired standard both in respect of contents and language for being referred to the examiners.


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ABSTRACT

Temperature control is a significant requirement in the most industrial process. In this regard, cooling towers are key parts of many power plant installations. Operation of the cooling tower as heat rejection device is based on a principle where waste thermal energy is extracted from hot water to the atmosphere using relatively cool and dry air. In this study, a review study is carried out to investigate different types of cooling towers, their application, performance, usage and working principles, which can be useful in the field of nuclear plants as well as other energy stations.

A number of investigations have been considered to reveal differences between the used cooling towers and finally a Fluent simulation has been carried out to examine major contours and flow field around the cooling tower.

Keywords: Cooling tower, Heat exchanger, Nuclear Energy, Waste heat.



Chhattisgarh Swami Vivekanand Technical University, Bhilai	
Name of program: Bachelor of Technology	Semester: IV
Branch: Mechanical Engineering	Code: B037414(037)
Subject: Manufacturing Process	Total Tutorial Periods: 01
Total Theory Periods: 02	Maximum Marks: 100
Class Tests: Two (Minimum)	Minimum Marks: 35
Assignments: Two (Minimum)	ESE Duration: Three Hours

Course Objectives:

This course is designed to provide students with an overview of a wide variety of manufacturing processes for processing of engineering materials. Student will learn principles, operations and capabilities of various moulding, metal casting, metal joining and metal cutting processes.

UNIT- I	Introduction to Manufacturing Processes: Importance of Manufacturing Processes, classification, technological definitions. Metal Casting (Foundry): Introduction: Basic Principle, Advantages and Limitations, Applications. Pattern Making: Pattern materials, allowances, types of pattern, color code scheme Mould Making: Green and dry sand casting process, types of sand, molding sand and its properties, molding sand composition and applications. Elements of mould: Cores; Use, core material, types of cores, advantages and limitations, core prints, chaplets, Gating and Riser System, Sand casting defects: appearance, causes & remedies. Special Molding Processes: Carbon dioxide molding process, investment casting process, Die casting process, shell molding process, continuous casting process, centrifugal casting processes.
UNIT-II	Welding – I: Introduction: Principle, classification based on application of filler material & without filler material, source of energy, fusing and pressure welding processes, application of welding processes. Arc welding: Principle, power source and equipments, welding electrodes- types' composition & specification, Metal Arc welding (MAW), flux Shielded Metal Arc Welding (FSMAW), Inert Gas Welding (TIG & MIG) Submerged Arc Welding (SAW) and Atomic Hydrogen Welding processes. (AHW). Gas Welding: Principle, Oxy-Acetylene welding, Reaction in Gas welding, Flame characteristics, Gas torch construction & working, forward and backward welding.
UNIT- III	Welding – II: Resistance Welding: General, principle of heat generation in resistance welding, application of resistance welding processes. Process details and working principle of spot, seam and projection welding, electrode materials, shapes of electrodes, electrode cooling, selection of welding currents, voltages. Special type of welding: Friction welding, Explosive welding, Thermit welding, Laser welding, Electron beam welding, Electroslag welding, Ultrasonic welding; principle, equipments, operations. Soldering, Brazing & Braze welding, Welding Defects
UNIT- IV	Machine Tools: Lathe: Principle of operation, basic parts of a lathe, types – speed lathe, engine, bench, tool room, capstan, turret, automatic, specification, construction, operations-facing, turning, knurling, taper turning, thread cutting, drilling, boring, reaming, work holding devices & tools, mechanism and attachments for various operations. Shaper: Principle of operation, parts, types horizontal, vertical, universal, Operations – horizontal cutting, vertical cutting, angular cutting, irregular cutting, specification, Quick return Mechanisms. Table feed mechanism, work holding devices. Planner: Principle of operation, parts, types – double housing, open side, pit type, plate type, divided table. Specification, types of drives.
UNIT-V	Milling: Principle of operation, parts, specification, types- horizontal, vertical, universal, milling operations – plain, face, slotting, gear cutting mechanisms and attachments for milling, indexing-simple, compound and differential. Broaching: Principle of operation, parts, types of broaches- horizontal, vertical, pull, surface-internal and external broaching machines, nomenclature, of broach.

