RAIPUR INSTITUTE OF TECHNOLOGY

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

SINCE 1995
RITEE

1.3.2 Average percentage of courses that include experiential learning through project work/field work/internship during last five years (10)

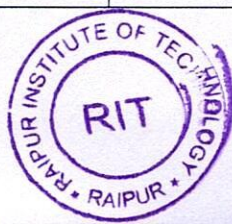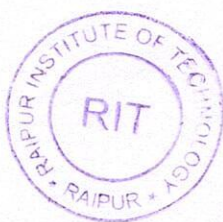| Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Year of offering	Name of the student studied course on experiential learning through project work/field work/internship
		2018-2019			
BE Biotechnology Engineering	18	Bioprocess Technology	318651 (18)	2018-19	KAMLESH PATEL VELUPULA KARTIK
BE Biotechnology Engineering	18	Microbial Technology	318352(18)	2018-19	ANKITA SHARMA, PRATEEK JASWANI, APARNA TIWARI, DIKESH KUMAR GURUPAHACHAN
E Biotechnology Engineering	18	Phytochemistry	318354(11)	2018-19	Bhavya Singh, Rajeshwari Sahu, Shreyas Raju
E Biotechnology Engineering	18	Thermodynamics and Biochemical Reaction Engineering	318452(19)	2018-19	Bhavya Singh, Rajeshwari Sahu, Shreyas Raju
E Biotechnology Engineering	18	Industrial Biotechnology, Process Economics and Management	318831(18), 318553(19)	2018-19	Shanta
E Biotechnology Engineering	18	Basic Immunology, Drug Design and Drug Delivery	318652 (18), 318742(18)	2018-19	Chandra Mohan Jangde
E Biotechnology Engineering	18	Biosafety & Bioethics	318552(18)	2018-19	Jitendra Kumar, Shivani Sharma, Shashank Sahu, Rahul Sahu
E Biotechnology Engineering	18	Cellular and Molecular Biology, Microbial Technology	318351(18), 318352(18)	2018-19	Yamank Banjare
E Biotechnology Engineering	18	Environmental Biotechnology	318653 (18)	2018-19	Jitendra Kumar, Shivani Sharma, Shashank Sahu, Rahul Sahu
BE Biotechnology Engineering	18	Recombinant DNA technology	318454(18)	2018-19	kajal Tiwari, Rajeshwari
BE Biotechnology Engineering	18	Stem Cell in Health Care	318733(18)	2018-19	Bhupendra Sahu, Rajendra kumar, Kamleshwar, Manish Yadu, Y. Shravani, Mukesh Talware, Manik lal, Lekhram
BE Biotechnology Engineering	18	Tissue Culture	318555(18)	2018-19	Bhupendra Sahu, Rajendra kumar, Kamleshwar, Manish Yadu, Y. Shravani, Mukesh Talware, Manik lal, Lekhram
BE Chemical Engineering	19	Fuel technology	319455(19)	2018-19	PALLAV PATHE, ANJULATA PANDEY JAY, UMASHANKAR SAHU, PRAFUL VERMA, PRAKSH SUMIT AGRAWAL.
BE Chemical Engineering	19	Environmental Pollution and Control	319452(19)	2018-19	ANUJ DANDEKAR, PRACHITI APTE DIVYA TURHATE, BALWANT CHAUHAN, IMRAN ALI, SHRISHTI KALKER SHIEKH, T.ABHIVANDAN, RESHMA RAJU
BE Chemical Engineering	19	Separation Processes - II	319733(19)	2018-19	SHUBHI SONI,SANDHYA MAHANT
B.E Chemical Engineering	19	Process Stoichiometric Calculation	319453(19)	2018-19	BHOLA RAM SAHU, SHAILESH KUMAR SAHU, KHUSHBOO YADAV, RAMDAYAL, ASHISH KUSHWAHA, ADITYA BANGANI, PIYUSH KUMAR SAHU, AMIT NAYAK, ANAM MASOOD, HARSH SISODIA, AAFREEN KHURSHEED, ARUN KUMAR, MADHU SURANA, ANKITA,
		Heat Transfer	319653 (19)		
		Separation Process I	319733(19)		
		Organic Process Technolog	319456(11)		
		Inorganic Process Technology,	319352(19)		
		Fluid and Paticle Operation,	319554(19)		

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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

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
BE Civil Engineering	20	Geotech Engineering-I	320552 (20)	2018-19	ABHISHEK RATHORE
					NIKET CHANDRAKAR
					HARSHIT JAISWAL
					GAJENDRA SINGH RAGHUWANSHI
					QUAZI MD. ATAUR RAHIM KHAN
					ANKIT MANEKAR
					NISHANT JAIN
					KSHITIJ NAMDEO
					SAGAR SHRIVASTAVA
BE Civil Engineering	20	Geotech Engineering-I	320552 (20)	2018-19	ALOK KU. GUPTA
					BITTU SAHU
					BIPUL KASHYAP
					VISHAL CHOUHAN
					JAYWANT TIRKEY
					NEERAJ NAIK
					GULSHAN SAHU
					VIKASH GHORMORE
					RISHABH SAW
					DHARMACHRYA DINDAYAL
					S. JAISWAL
BE Civil Engineering	20	Environmental Engineering - II	320733(20)	2018-19	KUNDAN SAHU
					VIVEK PRAJAPATI
					MANISH FARIKAR
					YOGESH MAHILANG
					RAHUL MEENPAL
					STUTI TRIPATHI
					VIVEK GIREPUNJE
					VIJAYLAXMI TUMRETI
					GULESH SAHU
					SHUBHAM VIMAL PATEL
					RITUSHA NISHAD
					ESHA PAKARIYA
					MOHIT VISHWAKARMA
					SUDHANSHU SHARMA
					TRISHANK CHANDRAKAR
BE Civil Engineering	20	Structural Engineering Lab	320661 (20)	2018-19	SHANKAR PRASAD
					HARISH CHANDRA
					TRILOK NATH SINHA
					SANDEEP SINGH
BE Civil Engineering	20	Environmental Engineering - II	320733(20)	2018-19	AAMIR AHMED
					BHARTI ODEDARA
					MONIKA LODHI
BE Civil Engineering	20	Concrete Technology	320654 (20)	2018-19	ABHISHEK GOLDER
					AMAR SINGH
					ISHA SAHU
					LOKESHWAR SAHU
					TILAK RAM SAHU
					TOSHAN SAHU
					RAKESH SONKAR
BE Computer Science & Engineering	22	Cryptography & Network Security	322734(22)	2018-19	SARTHAK SHRIVASTAVA
					SANDEEP PATEL
BE Computer Science & Engineering	22	Internet & Web Technology	300815(22)	2018-19	SWATI CHATURVEDI
					PRATIK RAJ
					RAHUL VERMA
					RITESH SAHI
BE Computer Science & Engineering	22	Internet & Web Technology	300815(22)	2018-19	AKANKSHA PRASAD
					ANKIT DUBEY
					AYUSH AGRAWAL
					KRITIKA OJHA
BE Computer Science & Engineering	22	Mobile Computing & Application	322731(33)	2018-19	SADAF J. KHAN
					PRAFUL SAHU
					M. HARIKA
BE Computer Science & Engineering	22	Internet & Web Technology	300815(22)	2018-19	AVINATH MARKAM
					DIMOND DIWAN
					SHRISHTY AJAY

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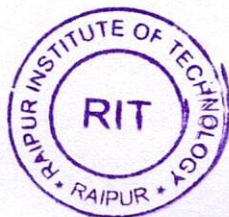| Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Year of offering	Name of the student studied course on experiential learning through project work/field work/internship
BE Computer Science & Engineering	22	Internet & Web Technology	300815(22)	2018-19	KISHOR SAHU
					VINOD BANJARE
					JYOTIKA TRIPURE
BE Computer Science & Engineering	22	Internet & Web Technology	300815(22)	2018-19	UMASHANKAR SINGH
					SMITA AMAN
					BUSHRA KHAN
BE Computer Science & Engineering	22	Software Engineering & Project Management	322654(22)	2018-19	ATUL PRAKASH
					SAURABH RAJNISH
					CHANDRA SHEKHR SAW
BE Computer Science & Engineering	22	Database Management System	322556(22)	2018-19	AYESHA FAROOQUI
					KHUSHBOO RAHMAN
BE Electronics & Telecommunication Engineering	3028	Electronic Devices and Circuits	328353(28)	2018-19	DILIP KUMAR JANGADE, PRAVEEN KUMAR SAHU, KHILESHWAR SAHU, DEVENDRA KOSLE, DIPTANSHU
BE Electronics & Telecommunication Engineering	3028	Microcontroller & Embedded	328653(28)	2018-19	RAVI KUMAR CHOUHAN
					ABHISHEK DEY
					ADITYA SINGH
					SATYA NAND
BE Electronics & Telecommunication Engineering		Microcontroller & Embedded	328653(28)	2018-19	Jaysar Ram
					Sandhya Banjare
					Akram Raja
BE Mechanical Engineering	37	Dynamics of Machines	337553 (37)	2018-19	TUMESHWARI KOSLE
					AJAY KURRE
					GAURISHANKAR YADAV
					JITENDRA BANDHE
					KAMAL NARAYAN PATEL
BE Mechanical Engineering	37	Machine Design – II	337651 (37)	2018-19	ABHISHEK SINGH
					LUCKY KUMAR
					SACHIN EKKA
					SHAILESH
					VIJAY SEN
BE Mechanical Engineering	37	Industrial Engineering & Management	337833(37)	2018-19	JAVED AKHTAR
					SAJKET GAUTAM
					SHIVAM MISHRA
					VIJAY KOSHLE
BE Mechanical Engineering	37	Mechanical Handling System&Equipments	337847(37)	2018-19	HIMANSHU JOSHI
					SHIKHAR SINHA
					MANISH SHUKLA
					PRAJJAWAL KHARE
BE Mechanical Engineering	37	Manufacturing Science - II	337555 (37)	2018-19	ASHOK KUMAR SAHU, DHRUV PRAKSH, KUMAR GAURAV, Md. NISHAR, SURAJ KUMAR, Md. SHAMSHAD, DAYASGAR VERMA, PROMOD NAHAK, VIKAS TIWARI,
BE Mechanical Engineering	37	Machine Design – II	337651 (37)	2018-19	BASANT PRASAD, PARIKSHIT MANDAL, PRASANJEET HALDAR, RAJKISHOR SARKAR, KRISHNA SAHU, HRITIK BANERGEE,
BE Mechanical Engineering	37	Computer Aided Design & Manufacturing	337733(37)	2018-19	AMRESH KUMAR DAS
					YOGESHWAR NISHAD
					MAHENDRA KUMAR PATAIL
					HEMANT KUMAR KHUNTE
					NIKESH
BE Mechanical Engineering	37	Turbo Machinery	337552 (37)	2018-19	DHANAJAY KUMAR YADAV, MUKESH KUMAR RATHORE, DURGESH KUMAR GILHRE, SOURABH, MAYANK KASHYAP, SUDHIR KUMAR YADAV, MANOJ

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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	Energy & Environment	530131 (19)	2018-19	JITENDRA KUMAR VERMA, VISHAL KUMAR
M.Tech Environmental Engineering	30	Water Pollution Control	530114 (19)	2018-19	AMAR NATH MISHRA, SHUBHAM SHARMA
M.Tech Computer Science & Engineering	22	Digital Signal Processing	522135 (22)	2018-19	Kajal Patel
M.Tech Computer Science & Engineering	22	Software Engineering Techniques	522213(22)	2018-19	Sangeeta Vishwkarma
M.Tech Computer Science & Engineering	22	Advanced Database Management System	522212 (22)	2018-19	Priyanka Dey
M.Tech Computer Science & Engineering	22	Digital Image Processing (Prerequisite Digital Signal Processing)	522235 (22)	2018-19	Devika Sahu
M.Tech Computer Science & Engineering	22	Cryptography & Network Security	522232 (22)	2018-19	Navee Mandal
M.Tech Computer Science & Engineering	22	A. I. and Applications	522211 (22)	2018-19	Komal Vyas
M.Tech Computer Science & Engineering	22	Neural Networks	522231 (22)	2018-19	Digvijay Singh Thakur
M.E.Power Electronics	5062	Microcontroller & Embedded System Design	562113(24)	2018-19	Ms Komal Shilpi
M.E.Power Electronics	5062	Microcontroller & Embedded System Design	562113(24)	2018-19	Mr.Gaurav Agrawal
M.E.Power Electronics	5062	Power Electronics Drives	562212(24)	2018-19	Ms Jyotsana Pandey
M.Tech Mchine Design	5099	Advanced Machine Tool Design	548213 (37)	2018-19	Gaurav Tamrakar
M.Tech Thermal	64	Numerical Methods in Thermal Engineering	564111 (37)	2018-19	Shushil Kumar Sharma
Master of Computer Application	21	Database Management System	521252(21)	2018-19	Vivek Vishvakarma, Hassim Uddin, Vineeta Thakur, Chitra Mishra, Dinesh Kumar Sahu, Lili Shrivas, Monika Soni, Shrishti Chouhan, Tirth Bansari, Nikhil Pawar, Yashisf Khan
Master of Computer Application	21	Data Structures	521253(21)	2018-19	Aishwarya Shukla
Master of Computer Application	21	Software Engineering	521453(21)	2018-19	Akshat Bagel, Ankit Choubey
Master of Computer Application	21	CompilerDesign	521452(21)	2018-19	Jyoti Yadav
Master of Computer Application	21	Computer Oriented Numerical Analysis	521254(14)	2018-19	Khilendra Verma
Master of Computer Application	21	Logic& Functional Programming	521472(21)	2018-19	Pralekh Rambhar
Master of Computer Application	21	Artificial Intelligence and Expert System	521451(21)	2018-19	Rajat Sharma
Master of Computer Application	21	NetworkProgramming	521473(21)	2018-19	Virendra Keshrani
Master of Computer Application	21	Advanced JAVA Programming	521454(21)	2018-19	Aakanksha Tiwari
Master of Business Administration	76	Product and Brand Management (New)	576431(76)	2018-19	KAVITA CHAURIYA, MANISHA THAKHUR, NAMRATA CHANDRAKAR, NEHA DALTANI, NEHA GAWANDE, NIKITA SINGH, NEELAM CHANDRA, HARSHA MANDHANI, HEENA JAISINGHANI, JAGRITI SHARMA, RITU SAHA, ROSHNI BAJAJ, SAJID KHAN, ARPANA SONI, ADITYA SINGH RAJPUT, ANITA RATHORE, ANJALI SINGH, AMIT PARGHANIA, BHAWANA SAHU, BHUMIKA TAUNK, TOKENDRA KUMAR SAHU, SHALU GOYAL, SUSHIL NAWANI, TRIPTY THER,

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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

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
Master of Business Administration	76	International Financial Management (New)	576442(76)	2018-19	NAMRATA RAJPAL, NEHA TIWARI, NIKHIL TOLANI, RAJIV SHARMA, RIYA JAIN, NIKITA GAUTAM, NITOO YADAV, PRIYANKA JAIN, POONAM JUMNANI, BHAVESH AGRAWAL, UTTAM KUMAR NISHAD , VARKHA BAJAJ
Master of Business Administration	76	Emerging Issues in HR Management (New)	576455(76)	2018-19	RAJANA KESHWARNAI, ASHISH MISHRA, BABITA VISHWAKARMA, JHANSA DEWANGAN, SHINY GOPAL, SARAWATI AKELA, SURBHI SONI, T.RAMYA REDDY,
Master of Business Administration	76	Business Process Re-engineering and ERP (New)	576461(76)	2018-19	PRIYANKA DALAI
Master of Business Administration	76	Supply Chain Management (New)	576471(76)	2018-19	AYUSHEE SHUKLA
Master of Business Administration	76	ADVANCED FINANCIAL MANAGEMENT	576214(76)	2018-19	TRIPTY THER, PRIYANKA JAIN, KAVITA CHAURIYA, SURBHI SONI, JAGRITI SHARMA, RAJIV SHARMA, JASMINE KHAN, HARSHA MANDHANI, ARPANA SONI, NIKHIL TOLANI,
Master of Business Administration	76	MARKETING MANAGEMENT	576213(76)	2018-19	T.RAMYA REDDY, MANISH BOSE, SHUBHANK SHARMA, SURESH CHAND TIWARI, CHUDAMANI SAHU, BHAVESH AGRAWAL, ADITYA SINGH RAJPUT
Master of Business Administration	76	HUMAN RESOURCE MANAGEMENT	576215(76)	2018-19	SHALU GOYAL, NEHA DOULTANI, NITOO YADAV, NIKITA GAUTAM, BHUMIKA TAUNK, ROSHNI BAJAJ, PRIYANKA DALAI, SUSHIL NAWANI,
Master of Business Administration	76	PRODUCTION & OPERATION MANAGEMENT	576216(76)	2018-19	RITU SAHA
Master of Business Administration	76	Media Management, Management Information system	5764979(76) 576211(76)	2018-19	Sachin Ther
Master of Business Administration	76	product and brand management, corporate strategy	576431(76) 576411(76)	2018-19	Neelam chandra, Hansa Dewangan, Ajay Verma
Master of Business Administration	76	Human Resource Planning and Development Performance Management	576351(76) 576355(76)	2018-19	SHIVENDRA YADU
Master of Business Administration	76	Consumer Behavior	576314(76)	2018-19	Anvesh Pratap Singh, Sunidhi Kerketta
Master of Business Administration	76	Business Planning Analysis Corporate Finance & Valuation	576444(76), 576344(76)	2018-19	Shreya Prithwani, Shubham Agrawal
Master of Business Administration	76	Management of Working Capital	576441(76)-	2018-19	Shiv Layalk Kushwaha
Master of Business Administration	76	Human Resource Planniong and development	576351(76)-	2018-19	Chandni Ratnani
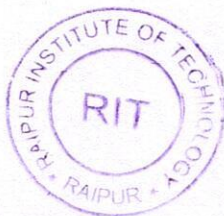
Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: **Biotechnology**
Subject: **Bioprocess Technology**
Total Theory Periods: **36**
No. of class Tests to be conducted: **2 (Minimum)**
ESE Duration: **Three Hours**

Semester: **VI**
Code: **318651 (18)**
Total Tutorial Periods: **12**
No. of Assignments to be submitted: **2 (Minimum)**
Maximum Marks in ESE: **80**   Minimum Marks in ESE: **28**

Course Objectives:
1. To impart knowledge of Bioprocess Technologyfor better understanding of its application in Fermentation Technology and Industrial processing.
2. To apply the practical aspects of industrial biotechnology using bioprocessing.

Course Outcome:
1. At the end of the course, the students would have learnt about fermentation processes,metabolic stoichiometry. Energetics, Kinetics of microbial growth etc.
2. This will serve as an effective course to understand certain specialized electives in Bioprocess related fields.

UNIT I   History and development of fermentation industry: introduction to submerged and solid state Fermentation, production of primary and secondary metabolite.

UNIT II   Raw material: availability, quality, processing and pretreatment of raw material.

UNIT III   Induction of microbes and regulatory mechanisms: Nutritional repression, carbon catabolite repression; Feedback inhibition and feedback repression.

UNIT IV   Protocols for developing mutant strains of microbes with the stable capacity of producing desired metabolites; Isolation and preservation of different types of mutants: induction resistant, feedback inhibition resistant.

UNIT V   Fermentations of recombinant microbial cells for large-scale production of genetically engineered primary and secondary metabolites; Chromatographic separation of the products.

Text books:
1. Murray Moo -Young, Comprehensive Biotechnology, Vol. 1 & III-latest ed. 45.
2. Microbes & Fermentation, A. Lel and Kotlers Richard J. Mickey, Oriffin Publication.

Reference Books:

1. Industrial Fermentations- Leland, N. Y. Chemical Publishers.
2. Prescott and Dunn's- Industrial Microbiology, 4th ed.
3. Biotechnology Series, Rehm, Reed &Weinheim, Verlag-Chemie.
4. Biochemical Engineering, Aiba, Humphrey & Miller, Academic Press.
5. Fermentations & Enzyme Technology, Wang & Humphrey, Wiley & Inter Science.
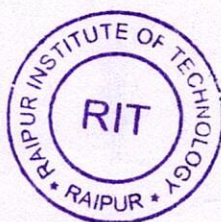
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

Name of the Programme: Bachelor of Engineering :::: Duration of the Programme: Four Years

"EXTRACTION AND ANALYSIS OF RICE BRAN OIL"

A Major Project Report Submitted To

Chhattisgarh Swami Vivekanand Technical University

Bhilai (India)
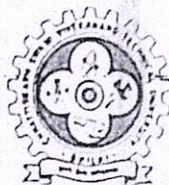
In partial fulfillment of the award of degree of

BACHELOR OF ENGINEERING

in

BIOTECHNOLOGY

Under the Guidance of

Dr. Tanushree Chatterjee

Department of Biotechnology

Submitted by

Kamlesh Patel (Roll No. 3121815008)
Velupula Kartik (Roll no. 3121815011)
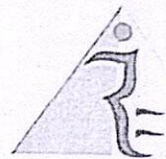
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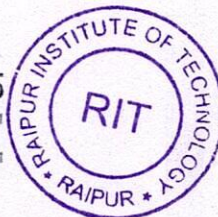
DEPARTMENT OF BIOTECHNOLOGY
RAIPUR INSTITUTE OF TECHNOLOGY

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April-May 2019
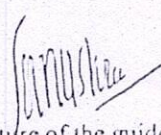
CERTIFICATE OF THE SUPERVISOR
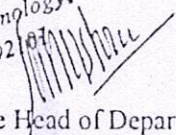
This is to certify that the work incorporated in the project" EXTRACTION & ANALYSIS OF RICE BRAN OIL" is the record of research work carried out by Kamlesh Patel bearing Roll No. 3121815008 And Velupula Kartik bearing Roll no. 312815011 under the guidance and supervision of our coordinator Dr. Tanushree Chatterjee (H.O.D.), RITEE for the award of degree of Bachelor's of Engineering in Biotechnology from Chhattisgarh Swami Vivekanand Technical University,Bhilai(C.G.) India.

To the best of our knowledge and belief the thesis:

1. Embodies the work of candidate himself.
2. Has duty been completed.
3. Fulfill the requirement of the ordinance relating to the B.E. degree of the university &
4. Is of the desired standard both in the respect of concept and language for being referred to the examiners.

HEAD,(Signature of the guide)
Deytt. of Biotechnology, Chatterjee
Raipur Institute Department of Biotechnology
RAIPUR.(C.G.) Institute of Technology

Forwarded to the Chhattisgarh Swami Vivekanand Technical University,Bhilai

HEAD,
Deytt. of Biotechnology,
Raipur Institute of Technology,
RAIPUR. (C.G.) 492101
R(signature of the Head of Department)
Dr. Tanushree Chatterjee
Department of Biotechnology
Raipur Institute of Technology
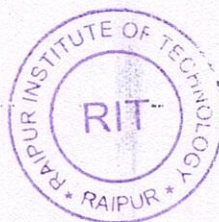
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RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

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ABSTRACT

Rice bran oil (RBO) also called wonder oil is well known for its numerous health benefits. The presence of a unique antioxidant called oryzanol contributes maximum antioxidant activity to rice bran oil. Rice bran oil has number of advantages over the other edible oil. The present short review will enable the readers and researches about the benefits of RBO.

Rice bran oil (RBO) is popular in several countries such as Japan, India, Korea, China and Indonesia as a cooking oil. It has been shown that RBO is an excellent cooking and salad oil due to its high smoke point and delicate flavor. The nutritional qualities and health effects of rice bran oil are also established. RBO is rich in unsaponifiable fraction, which contains the micronutrients like vitamin E complexes, gamma oryzanol, phytosterols, polyphenols and squalene. It is high in antioxidants namely oryzanol, tocotrienol, tocopherol and squalene with some amount of omega 3 fats. WHO, NIN and ICMR have recommended a near equal ratio of SFA(27-33%); MUFA(33-40%); PUFA(27-33%) in a healthy oil. Rice Bran oil is closest to this recommendation having SFA (24%); MUFA (42%); PUFA (34%). Therefore, in recent years, research interest has been growing in RBO processing to obtain good quality oil with low refining loss.
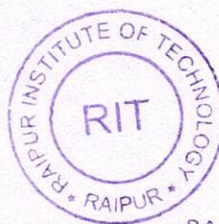
Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**
Branch: **Biotechnology**   Semester: **III**
Subject: **Microbial Technology**   Code: **318352(18)**
Total Theory Periods: **40**   Total Tutorial Periods: **NIL**
Class Tests: **Two (Minimum)**   Assignments: **Two (Minimum)**
ESE Duration: **Three Hours**   **Maximum Marks: 80**   **Minimum Marks: 28**

Course Objectives:
1. To make the students familiar with the science of microbiology and its significance in everyday life.
2. To make the students well acquainted with basic principles of Microbiology.

UNIT I   **Introduction and classification:** Course introduction, evolution of micro-organisms, habitat; **Classification and taxonomy and identification of the various microbes** (Methods in microbial ecology: Different approaches to identifying specific microorganisms and their function in microbial communities; Culturing; DNA-based methods, microscopy, radioisotopes and microelectrodes); **Classification of bacteria** and salient features according to Bergey's manual of determinative Bacteriology; Microbial diversity in different ecosystems (halophiles, mesophiles, thermophiles, acidophiles, alkalophiles, barophiles and other extremophiles); Structure and function of viruses, **classification of viruses**, replication of viruses, bacteriophages, plant viruses and animal viruses; **Classification of fungi** according to Alexopoulus and Mims, cell structure, specialized somatic structure; Reproduction in fungi, asexual, sexual and parasexual cycle, life cycles of fungi; **Structure and Classification of Algae**, ultrastructure and life histories of microalgae belonging to various algal classes, Cyanobacteria, Prochlorales and Cyanelles.

UNIT II   **Morphology 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 mechanisms: Microbial genetics** (control of gene expression at transcriptional and translational level, role of chromatin in gene expression and gene silencing, phages and viruses), **Physiology** (growth yield and characteristics strategies of cell division, stress response) microbial growth and reproduction, **Microbial pathogenesis** (Host parasite interaction recognition and entry process of different pathogens, molecular mechanism of infectious diseases).

UNIT IV   **Microbes and their uses:** Bioremediation; Detoxification of inorganic and organic pollutants by microorganisms and challenges of microbiological degradation of recalcitrant pollutants, role of microorganisms in petroleum biodegradation, water purification, water treatment and bioremediation; Soil and plant microbial habitats and implications for use of legumes; Organic farming and biologic pest control; Animal-microbial symbiosis (ruminants and dairy farms as sources of methane production).

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.

Text Books:
1. Microbiology, Pelzar, Chan & Kreig (1986), Tata McGraw-Hill Education (2001)
2. Microbiology, Presscott, Harley & Klein (1986) Tata McGraw-Hill Education (2007)

Reference Books:
1. Foundation of Microbiology (1999), K.P. Talaro & A. Talaro, 3rd Edition, W.C.B. McgrawHill
2. An Introduction to Microbiology , P. Tauro, K.K. Kapoor and K.S. Yadav
3. Microbiology and Biotechnology , D.P. Singh and S.K. Dwivedi, (2004) New Age International Pvt Ltd
4. Industrial Microbiology, L.E. Casida.
5. Introduction to soil and Agricultural Microbiology, G. Prabakaran.

Course Outcome:
1. Practical aspect of the course brings awareness in the students during handling of the microorganisms in a much protected way so as to minimize the hazardous consequences.
2. The students will be able to utilize the knowledge of industrial application for welfare of the community and their betterment.

"Phytochemical Test And Antifungal Activity Of *Nycanthes arbortristis*"

A major project report submitted to

Chhattisgarh Swami Vivekananda Technical University
Bhilai (INDIA)

For Partial Fulfillment Of The Award Of Degree

Bachelor of Engineering

In

Biotechnology

By

Aparna Tiwari
Enrollment No: AQ9964
**Dikesh Kumar Gurupahachan**
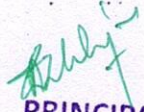Enrollment No: AQ9984

November 2018-2019

Under the Guidance of

Mrs.Trisha B.Tomer and Ms.Pooja Sahu
Assistant Professor

DEPARTMENT OF BIOTECHNOLOGY
RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Chhatauna, Mandir Hasaud, Raipur (CG) India - 492101
Phone - 91- 0771 - 3250790, 3208842, Fax - 91-0771-2537634
E-mail - contactus@rit.edu.in, Website - www.rit.edu.in
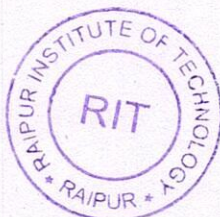
SINCE 1995
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Session: 2018-2019

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

RIT
RAIPUR INSTITUTE OF TECHNOLOGY RAIPUR

CERTIFICATE OF THE SUPERVISORS

This is to certify that the work incorporated in the project *"Phytochemical Test and Antifungal Activity of Nyctanthes arbor tristis"* is a record of research work carried out Aparna Tiwari[AQ9964]and Dikesh Kumar Gurupahachan[AQ9984].

Under our guidance and supervision for the award of Degree of Bachelor of Engineering in Biotechnology of Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.), India.

To the best of my knowledge and belief the project
i) Embodies the work of the candidate him/herself,

ii) Has duly been completed,

iii) Fulfills the requirement of the Ordinance relating to the B.E degree of the University and

iv) Is up to the desired standard both in respect of contents and language for being referred to the examiners.

23/05/19

(Signature of the Guide)
Mrs.Trisha B Tomer
Department of Biotechnology
Raipur Institute of Technology

23/05/19

(Signature of the Guide)
Ms.Pooja Sahu
Department of Biotechnology
Raipur Institute of Technology

Forwarded to Chhattisgarh Swami Vivekananda Technical University

Bhilai

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

(Signature of the Head of the Department with seal)

Dr. Tanushree Chatterjee
Department of Biotechnology
Raipur Institute of Technology

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CONTENT

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ABSTRACTS

Nyctanthes arbor-tristis is commonly known as Night-flowering Jasmine, Coral Jasmine and Parijat. The present studies attempts Phytochemical activity and Antifungal activity of leaves extract of Nyctanthes arbortristis. The extracts of the leaves of the above plants were taken for the study. Screening of phytochemical of Nyctanthes arbortristis for the presence of tannins, flavonoids, terpenoids, saponins, steroids, and solvent extract of leaf is used for antifungal activity of parijat against Saccharomyces, Aspergillus and Cladosporium fungus.
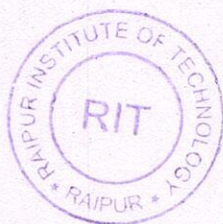
PRINCIPAL
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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**
Branch: **Chemical Engineering**
Subject: **Fuel Technology**
Total Theory Periods: **40**
Class Tests: **Two (Minimum)**
ESE Duration: **Three Hours**

Semester: **IV**
Code: **319455(19)**
Total Tutorial Periods: **NIL**
Assignments: **Two (Minimum)**
Maximum Marks: 80   Minimum Marks: 28

Course Objectives:
1. To study the types of fuel and their characteristics and uses.
2. To study the classification, preparation and storage of solid fuels.
3. To understand the carbonization process and physical and chemical properties of coke.
4. To understand the composition manufacturing, testing and treatment of liquid fuels.
5. To know the composition and calorific values of different types of gaseous fuels.

UNIT- I Types of coal, classification of coal, Indian coal reserves, Preparation and pretreatment of coal, Storage of coal, Coal washing process, Mechanical stokers.

UNIT-II Coal carbonization & bye product recovery, Physical & chemical properties of coke.   Pulverized fuel, Proximate and Ultimate analysis.

UNIT- III Origin of petroleum, Classification of crude petroleum, Indian petroleum resources, Thermal & catalytic cracking, Knocking & Octane Number, Flash & Fire Point ,Cloud & Pour Point, Redwood Viscometer.

UNIT-IV Diesel oil composition, Ignition Lag &Cetane number, Kerosene and Lubricants, Coal tarFuels, Sampling & Testing of liquid fuels, Liquid fuel burners, Atomizing oil burners, Vaporizing oil burners, Fractional Distillation.

UNIT-V Composition of different gaseous fuels & their calorific values, Study producer gas, Coal gas, water gas, carbureted water gas & natural gas, Combustion process and calculations.

Text Books:
1. Sarkar Samir,Fuels& Combustion, Orient Longman Limited 2nd Edition.
2. Brame& King, Fuels, Solid, Liquid and Gases, London, E. Arnold [1961, ©1955] 4th Edition.

Reference books:
1. Gupta O.P., Elements of Fuels Furnace & Refractories, Khanna Publishers, 3rd Edition.

Course outcomes:
1. The students will be able to understand the origin of fuels and their characteristics.
2. The students will be able to understand the application of fuel in daily life as well as in industries.
3. The students will be able to understand how the quality of fuel to be enhances.
4. The students will be able develop the instrument in which these fuels are used.
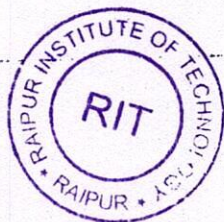
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

RECOVERY OF RICE BRAN OIL USING DIFFERENT SOLVENT MIXTURES

A Major Project Report Submitted To

Chhattisgarh Swami Vivekanand Technical University

Bhilai (India)

In partial fulfillment of the award of degree of

BACHELOR OF ENGINEERING

in

CHEMICAL ENGINEERING

Under the Guidance of

Dr. H. Kumar

(Advisor/Professor)

Department of Chemical Engineering

Submitted by

Pallav Pathe (AR0906)

Praful Verma (AR0920)

Umashankar Sahu (AR0959)

SINCE 1995
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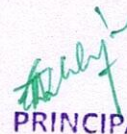
DEPARTMENT OF CHEMICAL ENGINEERING

RAIPUR INSTITUTE OF TECHNOLOGY

April-May 2019
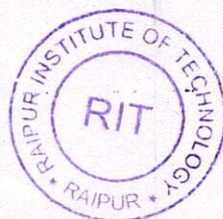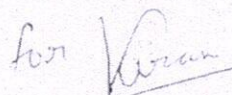
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

CERTIFICATE

This is to certify that the work in this project entitled **"Recovery Of Rice Bran Oil Using Different Solvent Mixtures"** submitted by Pallav Pathe, Praful Verma and Umashankar Sahu in partial fulfillment of the requirements of the prescribed curriculum for Bachelor of Engineering in Chemical Engineering, Session 2015-2019 in the Department of Chemical Engineering, Raipur Institute of Technology, Raipur is an authentic work carried out by them under my supervision and guidance. To the best of my knowledge to matter embodied in the thesis is their bonafide work.

for Kiran

Project Guide

Dr. H. Kumar
(Advisor Professor)
Department of Chemical
Engineering
Raipur Institute of Technology,
Raipur, (C.G.)

The major project work as mentioned above is being recommended and forwarded for examination and evaluation.

Head of the Department

Dr. D. Mukhopadhyay
Department of Chemical
Engineering
Raipur Institute of Technology,
Raipur, (C.G.)

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

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ABSTRACT

Extracting crude oil from oilseeds is the first step in the production of vegetable oil. Organic solvent-extraction is widely applied. The production of high value rice bran oil is gaining increased interest, and is the subject of the present project.

Rice bran oil was extracted using five different solvents, namely acetone, SL-M1 (75% acetone and 25% ethanol), SL-M2 (50% acetone and 50% ethanol), SL-M3 (25% acetone and 75% ethanol) and ethanol. The effect of the solvent type on the percentage recovery of the oil has been graphically represented and discussed when the temperature, contact time and type of solvent mixture were fixed. The results indicated that the percentage recovery of rice-bran oil was at the maximum when SL-M2 (50% ethanol and 50% acetone) was used as solvent. Further, the parametric effects on the extraction process were also investigated and critically discussed. The quality of the extracted rice bran oil was determined using moisture content, saponification and acid values.

Practical Application -A significant amount of rice bran (contains 13–28% oil) is being wasted from rice mills of an agricultural country like India. Further, rice bran oil is an important intermediate raw material for food and pharmaceutical industries. So, the present experimental studies composed of the recovery of the oil from rice bran through an efficient and cost-effective method. For this purpose, pure ethanol, pure acetone and three compositionally different mixtures of ethanol and acetone were used as solvents for the extraction process. Parametric effects were also investigated on the extraction process to collect the data for the economic process design.
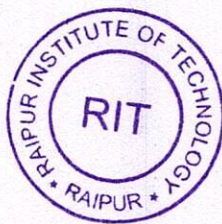
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RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**
Branch: **Chemical Engineering**
Subject: **Environmental Pollution and Control**

Semester: **IV**
Code: **319452(19)**

Total Theory Periods: **40**
Class Tests: **Two (Minimum)**
ESE Duration: **Three Hours**

Total Tutorial Periods: **10**
Assignments: **Two (Minimum)**
Maximum Marks: 80   Minimum Marks: 28

Course Objectives:
1. The students will understand various aspects of industries for pollution control in their premises so as to comply with newer and tougher laws and acts that are being enforced in India and globally.
2. The principles and methods to control air, water and soil pollution to the students of chemical engineering.
3. The topics cover sources of water, air and land pollution; legislation and standards; Recycle and reuse of waste, energy recovery and waste utilization.
4. Air pollution and its measurement, design of pollution abatement systems for particulate matter and gaseous constituents.

UNIT- I   Air pollution and meteorology. Air pollution from major industrial operations and some typical chemical industries. Air pollution control methods and equipment.

UNIT-II   Air pollution sampling and measurement (Analytical methods), Air pollution legislation and regulation.

UNIT- III   Water pollution- Sources of water pollutants, classification and characteristics of waste water, water pollution control methods and equipment, primary, secondary and tertiary treatment of waste water, legislation regarding prevention and control of water Pollution.

UNIT-IV   Nuclear waste materials and their disposal, hazards of radioactive materials and their handling, Treatment and disposal of nuclear waste materials, source reduction and recycling of solid wastes.

UNIT-V   Noise Pollution- evaluation, International standards for control, Noise control criteria, Administrative and engineering control, Effects of noise in Communication, working efficiency, industrial accidents etc, monitoring and control of Noise pollution, Noise measuring instruments.

Text Books:
1. RaoM.N and RaoH.V.N, Air Pollution, Tata McGraw Hill, 1989.
2. RaoS., Environmental Pollution control engineering, Wiley Eastern Limited, 1st Edition.

Reference books:
1. PandeyG.N. and Carney G.C., Environmental engineering,Tata McGraw Hill.
2. SingalS P, Noise Pollution and control, Narosa publishing House, New Delhi 2005.
3. Gill LMc.,Haldan F.R., Air Pollution Handbook, Tata McGraw Hill.

Course outcomes:
1. After studying the students are able to treatindustrial effluent.
2. Student must be able to understand the concept of water, air and land pollution as well as methods to control air, water and soil pollution.
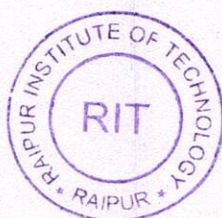
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

STUDIES ON THE REMOVAL OF LEAD USING SUGARCANE BAGASSE
AND WITH ACTIVATED CARBON: A GREEN APPROACH

A Major Project Report Submitted To

Chhattisgarh Swami Vivekanand Technical University Bhilai (India)

For the partial fulfillment of the award of degree of

BACHELOR OF ENGINEERING in CHEMICAL ENGINEERING

Submitted by

Anuj Dandekar (AR0890)

Reshma Raju (AR0930)
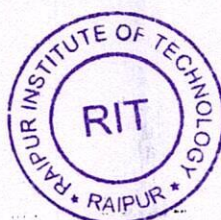
T. Abhivandan (AR0958)
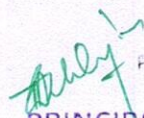
Under the Guidance of

Dr. D. Mukhopadhyay

Associate Professor

Department of Chemical Engineering

RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR

SINCE 1995
RITEE

APR-MAY 2019

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

CERTIFICATE

This is to certify that the work in this project entitled "**STUDIES ON THE REMOVAL OF LEAD USING SUGARCANE BAGASSE AND WITH ACTIVATED CARBON: A GREEN APPROACH**" submitted by Anuj Dandekar, Reshma Raju and T.Abhivandan in partial fulfillment of the requirements of the prescribed curriculum for Bachelor of Engineering in Chemical Engineering. Session 2015-19 in the Department of Chemical Engineering, Raipur Institute of Technology, Raipur is an authentic work carried out by them under my supervision and guidance. To the best of my knowledge to matter embodied in the thesis is their bonafide work. The project work as mentioned above is being recommended and forwarded for examination and evaluation.

Project Guide:

Dr. Debabrata Mukhopadhyay

Associate Professor

Department Of Chemical Engineering

Raipur Institute of Technology,

Raipur (C.G)

Head of the Department:

Dr. Debabrata Mukhopadhyay

Associate Professor

Department Of Chemical Engineering

Raipur Institute of Technology,

Raipur (C.G)

PRINCIPAL
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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

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

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**
Branch: **Chemical Engineering**
Subject: **Separation Process –II**
Total Theory Periods: **40**
Class Tests: **Two (Minimum)**
ESE Duration: **Three Hours**

Semester: **VII**
Code: **319733(19)**
Total Tutorial Periods: **10**
Assignments: **Two (Minimum)**

Maximum Marks: **80**   Minimum Marks: **28**

Course Objectives:
1. To impart the basic concepts of mass transport.
2. To develop understanding about, humidification, crystallization drying. Extraction and Leaching operations and problems.
3. To impart the basic concepts of mass transfer in, humidification, crystallization drying. Extraction and Leaching process and parameters.
4. To develop understanding about design and analysis of humidification, crystallization drying. Extraction and Leaching units

Course outcomes:
1. Create awareness among students with new and unconventional separation processes; acquire sufficient knowledge in energy intensive processes for separation of components, Students will be equipped with the applications in Down-streaming processes
2. Mechanisms: Separation factors and its dependence on process variables, classification and characterization, thermodynamic analysis and energy utilization, kinetics and mass transport.
3. Theory of cascades and its application in single and multistage operation for binary and multi component separations.

UNIT- I	**Crystallization:** Introduction to Crystallization, Classification of Crystallizer. Equilibrium data (Solubility), Calculation of Yields, Material and Energy balance, Theory of Crystallisation, Miers super saturation theory, Nature of Nucleation's, Rate of Crystal growth.
UNIT- II	**Humidification:** Humidification and Air Conditioning, Humidity Chart (Phychrometric Chart) and use, Wet bulb and Dry bulb temperature, Adiabatic Cooling line, General case of interaction between humid air and water, Levies relation. Dehumidification.
UNIT- III	**Drying:** Introduction to Drying, Phase Equilibrium Moisture, Bound and Unbound Moisture, Free Moisture, Drying operation-Constant drying rate, Drying Curve. Calculation the drying time under constant drying conditions.
UNIT- IV	**Extraction:** Liquid extraction, Liquid equilibrium, System of Three Liquids-one Pair Partially soluble, Choice of Solvents, Stage wise Contact-Single Stage Extraction. Multi stage cross current extraction, Insoluble Liquids, Continues counter current multistage extraction.
UNIT- V	**Leaching:** Introduction to Leaching, (Solid-Liquid Extraction), Factor's affecting leaching operations, Single stage leaching, Multistage cross current leaching, Multistage counter current leaching, Solid –Liquid Extraction calculation-Triangular diagram.

Text Books:
1. 1. Treybal R.E., Mass Transfer Operations, McGraw Hill
2. McCabe W.L., Smith J.C. & Harriott P., Unit Operations in Chemical Engineering, McGraw Hill
3. Coulson J.M. & Richardson J.F., Chemical Engineering, Vol. II, ELBS, Pergamon

Reference books:
1. Seader J.D.& Henley E.J Separation Process Principles Wiley India.
2. Foust A.S. et al, Principles of Unit Operations, John Wiley
3. Geankoplis C.J., Transport Processes and Unit Operations, Prentice Hall India.

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

EXPERIMENTAL STUDY ON MASS TRANSFER IN THREE PHASE FLUIDIZED BED USING BENZOIC ACID PALLET

A Major Project Report Submitted To

Chhattisgarh Swami Vivekanand Technical University

Bhilai (India)

In partial fulfillment of the award of degree of

BACHELOR OF ENGINEERING

in

CHEMICAL ENGINEERING

Under the Guidance of

Mrs. Vaishali pendse

(Asst. Professor)
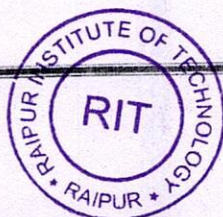
Department of Chemical Engineering

Submitted by

Shubhi Soni (AR0953)

Sandhya Mahant (AR0943)

SINCE 1995
RITEE

DEPARTMENT OF CHEMICAL ENGINEERING RAIPUR INSTITUTE OF TECHNOLOGY

April-May 2019
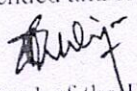
CERTIFICATE

This is to certify that the work in this major project entitled "Experimental study on Mass Transfer in Fluidized Bed using Benzoic Acid Pallet" submitted by Shubhi Soni and Sandhya Mahant in partial fulfillment of the requirements of the prescribed curriculum for Bachelor of Engineering in Chemical Engineering, Session 2015-19 in the Department of Chemical Engineering, Raipur Institute of Technology, Raipur is an authentic work carried out by them under my supervision and goidance. To the best of my knowledge to matter embodied in the thesis is their bonafidework.
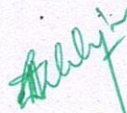
Project Guide

Mrs. Vaishali pendse(Asst. Professor)
Department of Chemical
Engineering
Raipur Institute of Technology,
Raipur, (C.G.)

The major project work as mentioned above is being recommended and forwarded for examination and evaluation.

Head of the Department
Dr. D. Mukhopadhyay
Department of Chemical
Engineering
Raipur Institute of Technology,
Raipur, (C.G.)

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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

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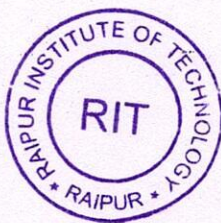RAIPUR INSTITUTE OF TECHNOLOGY
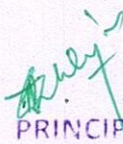CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

ABSTRACT

Fluidization is a process similar to liquefaction whereby a granular material is converted from a static solid-like state to a dynamic fluid-like state. This process occurs when a fluid (liquid or gas) is passed up through the granular material.

When a gas flow is introduced through the bottom of a bed of solid particles, it will move upwards through the bed via the empty spaces between the particles. At low gas velocities, aerodynamic drag on each particle is also low, and thus the bed remains in a fixed state. Fluidization has many applications with the use of ion exchange particles for the purification and processing of many industrial liquid streams. Industries such as food & beverage, hydrometallurgical, water softening, catalysis, bio-based chemical etc.

The mass transfer behaviour in three phase fluidized bed with benzoic acid pallets has been studied. Experiments were carried out using air, water and the benzoic acid pallets as the gas, liquid and solid phases respectively and nano material. The study was carried out where flow rate of water was taken as stagnant, and varying flow rate of air. Effect of different parameters on mass transfer rate have been found out.

Keywords: Three-phase fluidization, benzoic acid pallet, mass transfer

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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Computer Science & Engineering**	Semester:	**VI**
Subject:	**Software Engineering & Project Management**	Code:	**322654(22)**
Total Theory Periods:	**40**	Total Tutorial Periods:	**10**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**One per Unit**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

COURSE OBJECTIVE:
- To introduce software project and to understand about the different software processes & their uses.
- Understanding good coding practices, including documentation, contracts, regression tests and daily builds.
- To introduce ethical and professional issues and to explain why they are concern to software engineers.
- To understand how Software engineering & Project Management is concerned with theories, methods and tools for professional software development.

COURSE OUTCOME:
After completion of this course, the students would be able to
- Select and implement different software development process models
- Extracting and analyzing software requirements specifications for different projects
- Developing some basic level of software architecture/design
- Applying standard coding practices, Identification and implementation of the software metrics
- Defining the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress.
- Applying different testing and debugging techniques and analyzing their effectiveness.
- Analyzing software risks and risk management strategies
- Defining the concepts of software quality and reliability on the basis of International quality standards.

UNIT I **Introduction to Software Engineering:** The evolving role of software, Changing Nature of Software, legacy software, Software myths. A Generic view of process: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models. Process models: The waterfall model, Incremental process models, Evolutionary process models, specialized process models, The Unified process.

UNIT II **Software Requirements Specification (SRS):** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document. Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models: Context Models, behavioural models, Data models, Object-models, structured methods.

UNIT III **Software Design:** Basic Concept of Software Design, Architectural Design, Low Level Design: Modularization, Design Structure Charts, Pseudo Codes, Flow Charts, Coupling and Cohesion Measures, Design Strategies: Function Oriented Design, Object Oriented Design, Top-Down and Bottom-Up Design. Software Measurement and Metrics: Various Size Oriented Measures: Hallstead's Software Science, Function Point (FP) Based Measures, Cyclomatic Complexity Measures: Control Flow Graphs.

UNIT IV **Testing Strategies:** A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. Product metrics: Software Quality, Frame work for Product metrics, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance. Metrics for Process and Products: Software Measurement, Metrics for software quality.

UNIT V **Software Project Management:** People – Product-Process-Project. Project scheduling and tracking: Basic concepts-relation between people and effort-defining task set for the software project-selecting software engineering task. Computer aided software engineering tools - CASE building blocks, taxonomy of CASE tools, integrated CASE environment.**Software Risk management:** Reactive vs Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. Quality Management: Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

TEXT BOOKS:
1. Software Engineering: A practitioner's Approach, Roger S Pressman, sixth edition. McGrawHill International Edition, 2005
2. Software Engineering, Ian Sommerville, seventh edition, Pearson education,2004

REFERENCE BOOKS:
1. Software Engineering,A Precise Approach,Pankaj Jalote,Wiley India,2010.
2. Software Engineering : A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008
3. Fundamentals of Software Engineering,Rajib Mall,PHI, 2005
4. Software Engineering, Principles and Practices,Deepak Jain,Oxford University Press.
5. Software Engineering1: Abstraction and modeling, Diner Bjorner, Springer International edition, 2006.

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RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)
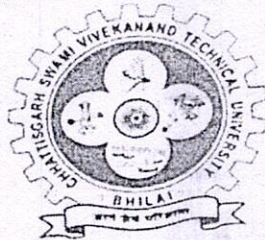
Name of the Programme: Bachelor of Engineering   Duration of the Programme: Four Years
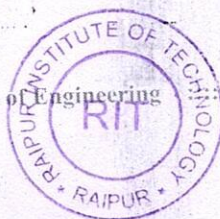
"KRISHI GYAN"

A project report submitted to
Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.), India

For fulfillment of the award of the Degree
Bachelor of Engineering in
Computer Science & Engineering in
By

Atül Prakash (AR0154)
Saurabh Kumar (AR0311)
Rajnish Kumar(AR0278)
Chandra Shekhar Saw(AO9235)

Under the Guidance of
Mr. Abhishek Kumar Saw

Asst Prof. Department of Computer Science and Engineering,
RITEE, Raipur (C.G.)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Chhatauna, Mandir Hasaud, Raipur, Chhattisgarh, India
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Session: 2018-2019

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RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Department of Computer Science and Engineering
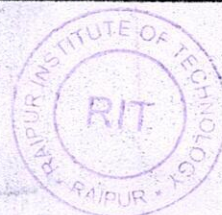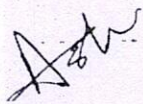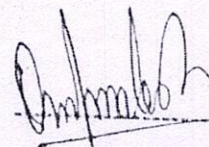
CERTIFICATE BY THE EXAMINERS

The project entitled **"KRISHI GYAN"** submitted by Atul Prakash Enrollment No:-AR0154, Saurabh Kumar Enrollment NO:-AR0311, Rajnish Kumar Enrollment no:- AR0278, Chandra Shekhar Saw Enrollment NO:-AO9235 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 &Engineering of Chhattisgarh Swami Vivekananda Technical University Bhilai, (C.G.)

Internal Examiner

Date:

External Examiner

Date: 2|·5|9·
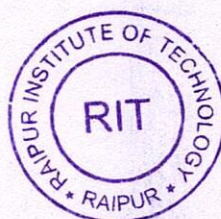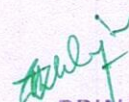
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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

ABSTRACT

The Krishi Gyan is an android application which provide all the details regarding the Agriculture. The details such as seeds information, doctors information, nearest crop center, government schemes and policies (such as seed insurance, information to improve productivity). This application helps the farmer to improve their productivity and further improve the process of economic development of the country.

This system aims to improve productivity, aware the information, new agriculture techniques to farmers so that economic condition of our country should also get improved. Due to lack of information, techniques, awareness every year many farmers get loss of their grains, crops and also their money etc.

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

Semester: VII   Branch: Computer Science & Engg.
Subject: Mobile Computing and Application   Code: 322731(33)
Total Theory Periods: 40   Total Tutorial Periods: 12
Total Marks in End Semester Exam: 80   Minimum number of CT to be conducted: 02

Course Objective
- To introduce the fundamental design principles & issues in cellular & mobile communications.
- To enable the student to understand the basic features of cellular-mobile communication systems and digital radio system.
- To motivate students to understand the different technology for working of mobile devices, their advantages and disadvantages and emerging problems.

Unit- I Introduction, Cell Coverage &, Frequency Management: Mobile and wireless devices, Frequencies for radio transmission, A basic cellular system, Cell Size. Elements of cellular radio systems, Design and Interference, Concept of frequency reuse, cell splitting, Channels, Multiplexing, Access Techniques, Medium Access control, Spread spectrum, Specialized MAC, Cell Throughput,, Co-channel interference reduction factor, Frequency management, fixed channel assignment, non-fixed channel assignment, traffic & channel assignment, Why hand off, types of handoff and their characteristics, dropped call rates & their evaluation.

Unit- II GSM Architecture & Services: GSM Services and Features, GSM System Architecture, GSM Radio Subsystem, GSM Channel Types, Example of a GSM Call, Signal Processing in OSM, Channel Coding for Data Channels, Channel Coding for Control Channels, Frequency and Channel Specifications. **New Data Services:** DECT Functional Concept, DECT Radio Link, Personal Access Communication Systems, PACS System Architecture, PACS Radio Interface, UMTS

UNIT-III: Wireless Networks: Wireless LAN, Hidden Nodes in Wireless Networks, Ordered MAC Techniques and Wireless Networks, Deterministic MACs for Wireless Networks, Comparison Of MAC Techniques for Wireless Networks; Infrared V/S Radio Transmission; IEEE 802.11, Architecture, Layers, Management; HIPERLAN; Bluetooth; Wireless Broadband (WiMAX), RFiD, Java Card., WLL.

UNIT-IV: Mobile network and Transport layer: Mobile Network Layer; Mobile IP, DHCP, ADHOC Networks; Mobile Transport Layer; Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP; Fast Transmit/Fast Recovery, Transmission/Time Out Freezing, Selective Retransmission, Transaction Oriented TCP.

UNIT-V: Mobile System Development and Support: Wireless Application Protocol (WAP) – WAP Model, WAP Gateway, WAP Protocols WAP User Agent Profile and Caching, Wireless Bearers for WAP, WAP Developer Toolkits, Mobile Station Application Execution Environment Third-Generation Mobile Services - Paradigm Shifts in Third-Generation Systems W-CDMA and cdma2000, Improvements on Core Network, Quality Service in 3G Wireless Operating System for 3G Handset, Third- Generation Systems and Field Trials, Other Trial Systems, Impact on Manufacture and Operator Technologies.

Course Outcome: After successful completion of the course students will be able to
- Understand the basic physical-layer architecture of a mobile communication system.
- Understand various multiple-access techniques for mobile communications, and their advantages and disadvantages.
- Students will be able to acknowledge about the working and development of mobile and wireless devices in detail, services provided by them and recent application development trends in this field.

Text Books
1. Mobile Communications – Schiller, Jochen; 2nd Indian Reprint, Pearson Education Asia – Addison Wesley Longman PTE. Ltd.
2. Wireless Communication Principles and Practice, Theodore S Rappaport, 2nd Ed, Pearson Education.

Reference Books:
1. Mobile Data Wireless LAN Technologies – Dayem, Rifaat A.; Prentice Hall International.
2. The Essential Guide to Wireless Communication Applications – Dornan, A.; 1st Indian Reprint, Pearson Education Asia.
3. Sandeep Singhal, "The Wireless Application Protocol", Pearson Education Asia,
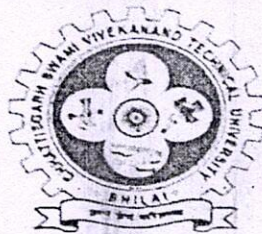4. P. Stavronlakis, "Third Generation Mobile Telecommunication systems", Springer Publishers.

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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

"Mobile App For Doctor Consultancy And Availability"

A project report submitted to
Chhattisgarh Swami Vivekanand Technical University, Bhilai(C.G.), India

For fulfillment of the award of the Degree
Bachelor of Engineering in
Computer Science & Engineering in
By

Sadaf Jameel Khan(AR0294)

Under the Guidance of
Prof. Mr. Ram Nivas Giri

Associate Prof. Department of Computer Science and
Engineering,RITEE, Raipur (C.G.)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
Chhatauna, Mandir Hasaud, Raipur, Chhattisgarh, India
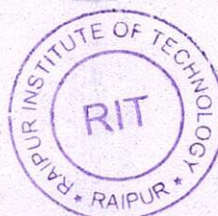Phone: 0771-3208842 FAX: 0771-2537634
Email: contactus@rit.edu.in , Website: www.rit.edu.in

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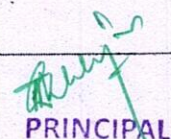
Session: 2018-2019

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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

CERTIFICATE BY THE SUPERVISOR

This is to certify that the report of the thesis entitled "Mobile App for Doctor Consultancy And Availability" a record of research work carried out by Sadaf Jameel Khan bearing Roll No. 3122215029 & Enrollment No.: AR0294 under my guidance and supervision for the award o Degree of **Bachelor of Technology** in Computer Science and Engineering of Chhattisgarl Swami Vivekanand Technical University, Bhilai (C.G.), India.

To the best of my knowledge and belief the thesis

i) Embodies the work of the candidate himself,

ii) Has duly been completed,

iii) Fulfils the requirement of the Ordinance relating to the B.E. degree of the University and

iv) Is up to the desired standard both in respect of contents and language for beinreferred to the examiners.

(Signature of the HOD)
Mr. Avinash Dhole
Head of the Department,
Department of CSE, RITEE,
Raipur (Chhattisgarh)

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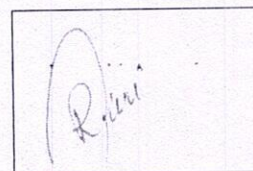
(Signature of the Supervisor)
Mr. Ram Nivas Giri
Ass. Professor
Department of CSE, RITEE,
Raipur (Chhattisgarh)

ABSTRACT

"**Mobile App for Doctor consultancy and availability**" is a medical facilitation application which designed for Android mobile users. This application can be used to check doctor availability in a clinic, treatment procedure, clinic location, ratings etc.

This application acts as a platform that brings all doctors in a city at one place. A patient can search for a doctor, or the nearest doctor in their locality or city. Also this application help in maintaining a proper database of patient and doctor's history. It includes who all doctors a patient consulted, their records, medication history etc.

Unlike other similar kinds of apps in the android play store, this application has unique features such as checking the availability of the doctor in the clinic, finding the location of the clinic, viewing their medical history, issuing online prescription to patients, referring patients to a specialist, sending health tips to patients, and effectively, reducing the cost of customer service and providing a vital communication link between doctors and patients.

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

Semester: **VIII**
Subject: **Cryptography and Network Security**
Total Theory Periods: **40**
Total Marks in End Semester Exam: **80**
Minimum number of class tests to be conducted: **02**

Branch: **Computer Science & Engg.**
Code: 322734(22)
Total Tutorial Periods: **12**
Assignments: **1 per Unit**

Course Objective:
- To understand the principles and practices of cryptography and network security
- To understand the practical applications that have been implemented and are in use to provide network security

UNIT I: Overview: Security trends, The OSI Security Architecture, Security Attacks, Security Services, Security Mechanisms, A Model for Network Security. **Symmetric (Private Key) Ciphers: Classical Encryption Techniques:** Symmetric Cipher Model, Substitution Techniques, Transposition Techniques, Rotor Machines, Steganography. **Block Ciphers and the Data Encryption Standard:** Block Cipher Principles, The Data Encryption Standard (DES), The Strength of DES, Differential and Linear Cryptanalysis, Block Cipher Design Principles.

UNIT II: Symmetric Ciphers (continued): **Basic Concepts in Number Theory and Finite Fields:** Groups, Rings, and Fields, Modular Arithmetic, the Euclidian algorithm, Finite Fields of the Form GF(p), Polynomial Arithmetic, Finite Fields of the Form GF(2n). **Advanced Encryption Standard:** The Origins AES, Evaluation criteria for AES, the AES Cipher. **Stream cipher:** Stream ciphers and RC4. **Confidentiality using symmetric encryption:** Placement of encryption function, traffic confidentiality, key distribution.

UNIT III: Asymmetric (Public Key) Ciphers: Introduction to Number Theory: Prime Numbers, Fermat's and Euler's Theorems, Testing for Primality, The Chinese Remainder Theorem, Discrete Logarithms. **Public-Key Cryptography and RSA:** Principles of Public-Key Cryptosystems. **Key Management-Other Public-Key Cryptosystems:** Key management, Diffie-Hellman Key Exchange, Elliptic Curve Arithmetic, Elliptic Curve Cryptography.

UNIT IV: Asymmetric Ciphers (continued): Message Authentication and Hash functions: Message authentication requirements, authentication functions, Message authentication codes, Hash functions, Security of Hash functions and MAC, SHA, HMAC, CMAC. **Digital Signatures and Authentication protocols:** Digital signature, Authentication protocols, Digital signature standards,

UNIT V: Network Security applications: Authentication applications: Kerberos, X.509 Authentication services, Public-key infrastructure. **Electronic mail security:** PGP, S/MIME, Overview of IP Security. **Web Security:** Web security considerations, SSL and TLS, Secure electronic transaction. **System Security:** Intruders, Intrusion detection, password management, viruses and related threats, virus counter measures, Firewall design principles, and trusted systems.

Course Outcome: after successful completion of this course, the students will be able to explain
- Conventional encryption algorithms for confidentiality and their design principles
- Public key encryption algorithms and their design principles
- Use of message authentication codes, hash functions , digital signature and public key certificates
- Network security tools and applications
- System-level security issues like threat of and countermeasures for intruders and viruses, and the use of firewalls and trusted systems.

Text Book:
1. William Stallings, "Cryptography and Network Security, Principles and Practices", Pearson Education. Prentice Hall, 4th Edition.
2. Cryptography and Network Security, Atul Kahate, McGraw Hill Education (India) Private Limited; Third edition.

Reference books:
1. Applied Cryptography: Protocols & Algorithms, Schneier & Bruce, MGH International.
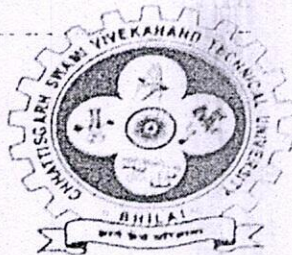2. Cryptography and Security – by Dr T R Padmanabhan N Harini , Wiley India Pvt Ltd, 2011.

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THE-FRONT

A project report submitted to
Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.), India

For fulfillment of the award of the Degree
Bachelor of Engineering
in
Computer Science & Engineering
By
Sarthak Srivastav (AR0308)

Under the Guidance of
Prof. Mr. Avinash Dhole

HoD & Associate Prof. Department of Computer Science and Engineering, RITEE, Raipur (C.G.)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR
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Session: 2018-2019

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Department of Computer Science and Engineering
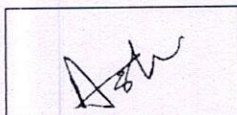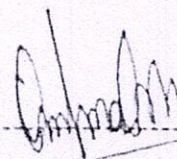
CERTIFICATE BY THE EXAMINERS

The project entitled "THE_FRONT" submitted by Sarthak Srivastav Enrollment No:-AR0308, 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 &Engineering of Chhattisgarh Swami Vivekananda Technical University Bhilai, (C.G.)
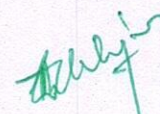
Internal Examiner

Date:

External Examiner

Date: 21.5.19.
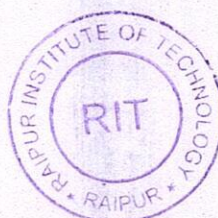
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CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

ABSTRACT

Now a days, everyone need a right facts and views with clear and clean mindset now every main stream media houses are not doing a right work and the present case the political party have a lot of resources and money and they are used in negatives areas so that a reason we need to create some technical platform where everyone can read a right facts and understand his/her own mindset on the basis of right facts.

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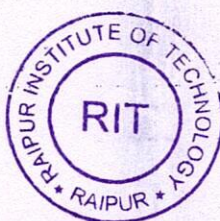# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch: **Mechanical Engineering/Mechatronics Engineering** Semester: **V**
Subject: **Dynamics of Machines** Code: **337553 (37)**
Total Theory Periods: **40** Total Tutorial Periods: **10**
No. of class Tests to be conducted: **2 (Minimum)** No. of assignments to be submitted: **2 (Minimum)**
ESE Duration: **Three Hours** Maximum Marks in ESE: **80** Minimum Marks in ESE: **28**

Course Objectives:
- To study types of mechanical governors and to analyze its performance parameters
- To Apply the theory of balancing to rotating and reciprocating masses.
- To analyze gyro-effect on moving bodies
- To understand the concepts of mechanical vibration
- To perform inertia force analysis of machine elements
- To draw turning moment diagram of reciprocating engines
- To analyze performance parameters flywheel

Course Outcome
- Apply knowledge of Dynamics of machine for understanding, formulating and solving engineering problems.
- Acquire knowledge and hands-on competence in applying the concepts Dynamics of machine in the design and development of mechanical systems.
- Demonstrate creativeness in designing new systems components and processes in the field of engineering
- Identify, analyze and solve mechanical engineering problems useful to the society.
- Work effectively with engineering and science teams as well as with multidisciplinary designs.

UNIT I **Governors:** Characteristics of centrifugal governors, Gravity controlled governors, Porter and proell. Spring controlled centrifugal governor: Hartung, &Hartnell governor. Performance parameter: Sensitivity, stability, Isochronisms, Governor Effort and power.

UNIT II **Balancing:** Balancing of rotating masses, Static and dynamic balancing, Determination of balancing masses in two plane balancing, Balancing of internal combustion engines, Balancing of in-line engines, Firing order, Balancing of V-twin and radial engines, Forward and reverse crank method, Balancing of rotors.

UNIT III **Gyroscope:** Gyroscopic forces and couple, gyroscopic effect in Airplanes, Ship motion and Vehicles moving on curved path.

UNIT IV **Mechanical Vibrations:** One-dimensional, longitudinal, Transverse, and torsional vibrations, Natural frequency, Effect of damping on vibrations, Different types of damping.Forced vibration, Forces and displacement, Transmissibility, Vibration Isolation, Vibration sensors: seismometer and Accelerometers, Whirling of shafts with single rotor.

UNIT V **(a) Inertia force analysis:** Effective force and inertia force on link, Inertia force on reciprocating engine. Inertia force in four bar chain mechanism.
(b)Turning moment diagram and flywheel: Turning moment diagram for single and multi cylinder internal combustion engine, Coefficient of fluctuation of speed, Coefficient of fluctuation of energy, Flywheel.

TEXT BOOKS
1. Theory of Machine- S.S.Rattan - Tata McGraw Hill.New Delhi
2. Theory of Machines - Thomas Bevan, - CBS/ Cengage Publishers

REFERENCE BOOKS
1. Theory of Machines and Mechanism– Uicker, Pennock, &Shigley – Oxford Univ. Press
2. Theory of Mechanisms and Machines--A. Ghosh, A. K. Mallik – EWP Press..
3. Mechanism and Machine theory-Ambekar-PHI,Delhi
4. Theory of Machine – P.L. Ballaney – Khanna Publishers, New Delhi
5. Theory of Machine -JagdishLal- Metro Politan Books, New Delhi

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Name of the Programme: Bachelor of Engineering Duration of

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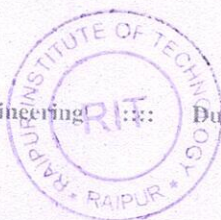
Major Project Report

on

"BIKE STAND SLIDING SYSTEM WITH DC MOTOR"

Submitted to

SINCE 1995
RITEE

"CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY BHILAI"

Bachelor of Engineering in

MECHANICAL ENGINEERING

Guided by

Mr. Swapnil shukla
(Asst. Prof.)

Submitted by

Tumeshwari Kosle (3123715057)

Ajay Kurre (3123715005)

Gourishankar Yadav (3123715020)

Jitendra Bandhe (3123715023)

Kamal Narayan Patel (3123715026)
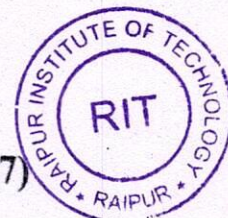
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Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**
Branch: **Mechanical Engineering**   Semester: **VIII**
Subject: **Industrial Engineering & Management**   Code: **337833(37)**
Total Theory Periods: **40**   Total Tutorial Periods: **10**
Class Tests: **Two (Minimum)**   Assignments: **Two (Minimum)**
ESE Duration: **Three Hours**   **Maximum Marks: 80 Minimum Marks: 28**

Course Objectives:

1. To impart capability of successfully planning, controlling, and implementing projects.
2. Understand and apply the principles of maths, science, technology and engineering, involving industry-relevant problems.
3. Contribute to the profitable growth of industrial economic sectors by using IE analytical tools, effective computational approaches, and systems thinking methodologies.
4. Maintain high standards of professional and ethical responsibility.
5. Flourish and work effectively in diverse, multicultural environments emphasizing the application of teamwork and communication skills.
6. Practice life-long learning to sustain technical currency and excellence throughout one's career.

Unit-I : Introduction
History & development, objective, place of Industrial Engineering in an organization, relation with other department, system approach

Plant Location
Need for a suitable location, Plant location problems factors affecting location, quantitative method for evaluation of plant location.

Plant Layout
Objective & Principles, factors affecting layout, types of layout.

Unit-II : Work Study
Purpose, objectives and applications of work study, Productivity and work study.

Method Study
Introduction, procedure, flow process charts, Multiple activity chart, motion economy principles, Therbligs, cycle graph and chronocyclegraph.

Work Measurement
Definition, types, Time Study- selection & timing the job, rating, allowances, Numerical on Normal and standard time calculation.

Unit-III : Job Evaluation and Merit Rating
Definition, objectives, methods.

Wages and Incentives
Terminology, characteristics, factors, types of incentives, wage incentive plan, Rowan plan, Taylor's differential piece rate system, Emerson's efficiency plan, Halsey's 50-50 plan, Bedaux plan, Group task & Bonus system.

Unit-IV : Basic concepts and Functions of management
Nature, Purpose and Objectives of basic functions of management, Authority and Responsibility, social responsibility of manager, ethics and management.

Human Resource Management
Nature and Scope of Human Resource Planning, Recruitment and Selection, Training and Development, Career Growth, Grievances, Motivation – needs and types, Maslow hierarchy of needs theory, Herzberg two factor theory, Need-want-satisfaction chain, Quality of working life, job enrichment and job enlargement.

Unit-V :

Marketing Management
Marketing Environment, Marketing Mix, Advertising and Sales Promotion, Channels of Distribution.

Financial Management
Book keeping, financial statement Analysis, Financial Ratios, Capital Budgeting, Break-Even Analysis.

TEXT BOOKS
1. Industrial Engineering and Production Management -Martand Telsang - S.Chand.
2. Industrial Engineering & Management - S. Dalele & Mansoor Ali - Standard Publishers.

REFERENCE BOOKS
1. Industrial Engineering & Management ,A new perspective- Philip E Hicks - Mcgraw Hill
2. Company Essential of Management - H. Koonz and H. Weihrich – Mcgraw Hill
3. Marketing Management- Kotler Philip- Prentice Hall of India
4. Flexibilty in Management - Sushil, Vikas publication - New Delhi
5. Human Resource Management - Luthans Fred - McGraw Hill, Inc.
6. Financial Management - M.Y. Khan and P.K. Jain - Tata Mc-Graw Hill
7. Fundamentals of Business Organizations and Management -Y.K. Bhusan - S. Chand
8. Industrial Management - K.K. Ahuja - Khanna Publishers
9. Introduction of work study - ILO, Geneva - Universal Publishing Corporation, Bombay
10. Motion and Time Study - Ralph M. Bannes - John Wiley & Sons
11. Work Study and Ergonomics - H.S. Shan - Dhanpat Rai & Sons

Course Outcomes:
- Ability to apply mathematics and science in Industrial engineering.
- Ability to design and conduct experiments, as well as to analyze and interpret data
- Ability to identify, formulate, and solve engineering problems
- Ability to use the techniques, skills, and modern engineering tools necessary for industrial engineering practice
- Ability to design, develop, implement and improve integrated systems that include people, materials, information, equipment, and people
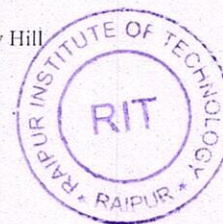
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

"AGRO - BOT"

A

Thesis submitted to

RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR

SINCE 1995
RITEE

"CHHATTISGARH SWAMI VIVEKANAND

TECHNICAL UNIVERSITY BHILAI"

In partial fulfilment
For the award of the Degree
Of

Bachelor of Engineering in

MECHANICAL ENGINEERING

Guided by

Mr. Ashvini Bhoi

(Asst. Professor)

Submitted by
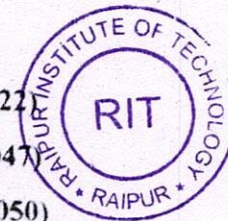
Javed Akhtar (3123715022)

Saket Gautam (3123715047)

Shivam Mishra (3123715050)

Vijay Koshle (3123715061)

Session: April-May (2018 -19)

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

i

ABSTRACT

Agriculture is the backbone of Indian economy. About half of the total population of our country has chosen agriculture as their chief occupation. The states like Maharashtra, Punjab, and Kerala, Assam are highly involved in agriculture. It all started due to the impact of, "Green Revolution" by means of which farmers came to know about the various techniques involved in farming and the advantages in it. As centuries passed, certain modern techniques were invented in agriculture due to the progress in science. These modern techniques included the use of tractors for ploughing the field, production of pesticides, invention of tube-wells etc. Since water is the main necessity in this scenario, techniques were discovered which would help in watering the field easily, consume less water and reduce human efforts. These discoveries improved the standard of living of farmers. Agro-Technology is the process of applying the technology innovation occurring in daily life and applying that to the agriculture sector which improves the efficiency of the crop produced and also to develop a better Mechanical machine to help the agriculture field which reduces the amount and time of work spent on one crop. Hence in this work of project we decided to design a better mechanical machine which is available to the farmers at a cheaper rate and also which can sow and seed the crop at the same time. This project consists of the better design of the machine which can be used specifically for sowing of soybean, maize, pigeon pea, Bengal gram, groundnut etc. For various agricultural implements and non-availability of sufficient farm labour, various models of seed sowing implements becoming popular in dry land regions of India. The success of crop production depends on timely seeding of these crops with reduced dull work of farm labour. The ultimate objective of seed planting using improve sowing equipment is to achieve precise seed distribution within the row.
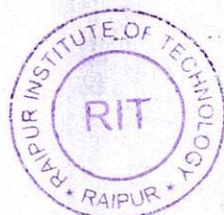
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RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

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

Name of program: **Bachelor of Engineering**
Branch: **Mechanical Engineering**   Semester: **VII**
Subject: **Computer Aided Design and Manufacturing**   Code: 337733(37)
Total Theory Periods: **40**   Total Tutorial Periods: **10**
Class Tests: **Two (Minimum)**   Assignments: **Two (Minimum)**
ESE Duration: **Three Hours**   **Maximum Marks: 80**
                                                                                   Minimum Marks: 28

Course Objective:
- To introduce the student to be familiar with CAD/CAM terminology & its capabilities.
- To become familiar with CAD/CAM software, Graphical user interface & basic tools.
- To recognize geometric and graphical elements of engineering design problems
- To apply a "hands-on" understanding of the basic concepts of computer-aided manufacturing and prototyping through group and individual projects
- To study Basic features of CAM so as to be capable of accepting professional responsibilities and to understand the associativity between design and manufacturing.
- Integrate the CAD system and the CAM system by using the CAD system for modeling design information and converting the CAD model into a CAM model for modeling the manufacturing information.

UNIT-I
Introduction: Introduction of CAD/CAM, Definition of CAD & CAM tools, the influence of computers on manufacturing environment, Benefits of CAD/CAM. The product cycle, product engineering, concurrent engineering.
Window and View port: Window definitions, View port definitions, Window and View port relationship; World co-ordinates; Normalized device co-ordinates and Homogenous co-ordinates.

UNIT – II
Geometric Modeling: Requirement of Geometric Modeling, Geometric models, Geometric construction Methods, other modeling methods, 2D & 3D Transformations, Perspective and Parallel Projection, Viewing transformation.
Geometric Modeling of Curves: Parametric and Non parametric, Explicit and Implicit, Representation of curves. *Analytical Curve*: Line, Circle, Conics. *Synthetic curve:* Hermite Cubic Splines, Bezier Curves, B-Spline Curves. C0, C1 & C2 Continuity, Convex hull.

UNIT –III
Representation of Surface: Parametric Representation of surfaces, Equation of surface, Tangent vector, Normal vector, Twist vector, parametric patches and surfaces, Analytical surfaces: Ruled surface, surface of revolution, Tabulated cylinder. Synthetic surface: Hermit bi-cubic surface, Bezier bi-cubic surface, B spline bicubic surface, Coon's surface.
Solid Modeling: Solid modeling techniques, Geometric and Topology, Valid solid, Types of solid modeling, Algorithms, Basic set theory, Solid Representation Schemes. CSG representation, 3D base primitives, Unary Operation, Boolean Operation, Sweeping Operation and CSG tree.

UNIT – IV
Numerical Control
Introduction to Numerical Control, Basic components of an NC system, the NC procedure, NC coordinate systems, NC motion control systems, applications of Numerical Control, Introduction to Computer Control in NC, problems with conventional NC, Computer Numerical Control, Direct Numerical Control, Combined DNC/CNC system, Adaptive control machining system,

NC Part Programming
Introduction to NC Part Programming, Manual part programming, Computer assisted part programming, the APT (Automatically Programming Tool) language, MACRO statement in APT, Advantages of CAD/CAM in NC programming.

UNIT –V
Group Technology
Introduction to group technology, part families, parts classification & coding, three parts classification & coding system, group technology machine cells, benefits and Limitation of group technology
Computer integrated manufacturing (CIM) system
Introduction of CAPP, Flexible Manufacturing System, Benefits.

Text Books:
1. CAD/CAM Theory and Practice- Zeid, Ibrahim & Sivasubramanian,TMH, Delhi
2. CAM/CAD principle & Applications-P.N.Rao- TMH, New Delhi

Reference Books:
1. CAD/CAM-Milkell P. Groover, Emory W. Zimmer-Pearson Education, Delhi
2. Computer Aided Design & Manuacturing – Lalitnarayan – PHI,Delhi
3. Introduction to Computer Graphics- N. Krishnamoorty, TMH, Delhi
4. Computer Numeric Control-T.Jeyapoovan, Robert Quesada-Pearson Education
5. CAD/CAM – Surendra Kumar & A.K. Jha – Dhanpat Rai , New Delhi

Course Outcome:
- Understand the various CAD/CAM and CNC processes.
- Generate and verify the tool path and NC programs for milling and drilling manufacturing processes.
- Recognize various types of Curves, surface and Solid and their application as used in geometric modeling.
- Appreciate the concept of parametric modeling which is the mainstay of most of the 3D modeling system.
- Write and prove sample part programs for CNC machining centres in planar milling operations using the word address format.
- Understand the needs of master production schedule and methods to develop it.
- Plan and execute the production activity control, which actually deals with operations in the shop floor.
- Skillfully use modern engineering tools and techniques for mechanical engineering design, analysis and application.
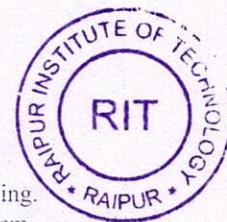
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

A

Major Project Report

on

" BLUETOOTH BASED VEHICLE ROBOT "

Submitted to

SINCE 1995
RITEE

"CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY BHILAI"

Bachelor of Engineering in

MECHANICAL ENGINEERING

Guided by

Mr. ANOOP KUMAR KOSRE
(Asst. Prof.)

Submitted by

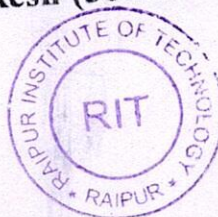Amresh Kumar Das (3123715008)

Yogeshwar Nishad (3123715071)

Mahendra Kumar Patail (3123715069)

Hemant Kumar Khunte (301203716301)

Nikesh (301203716302)

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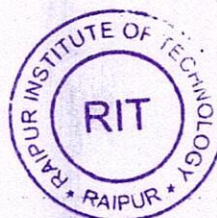RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

ABSTRACT

This Work is based on Arduino, motor driver and Bluetooth module. Arduino is an opensource prototyping platform Based on easy-to-use hardware and software. Arduino uses an ATmega328 microcontroller. Since robotics has become a major part in our daily life and also in the engineering field and it plays a vital role in the development of new technology. This is a very simple and easy type form of remote control car, where the ordinary micro-controller has been replaced by Arduino and IR sensors has been replaced by a Bluetooth module. The remote can be any android or IOS cell phones. This project can be made in a bigger scale for real time vehicles.

Keywords :- Arduino Uno, Arduino IDE, Motor Driver, Battery and motor.

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Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**
Branch: **Mechanical Engineering**   Semester: **VIII**
Subject: **Mechanical Handling System and Equipments**   Code: **337847(37)**
Total Theory Periods: **4 0**   Total Tutorial Periods: **10**
Class Tests: **Two (Minimum)**   Assignments: **Two (Minimum)**
ESE Duration: **Three Hours**   Maximum Marks: **80** Minimum Marks: **28**

Course Objectives:

- To introduce to the importance of proper material handling and storage techniques.
- To introduce to selection of material handling equipment
- To introduce to design considerations of mechanical handling equipment and load lifting attachments

UNIT – I

Elements of Material Handling System

Importance, Terminology, objectives and benefits of better Material Handling, Principles and features of Material Handling System, Interrelationships between material handling and plant layout, physical facilities and other or organizational functions, Classification of Material Handling Equipment.

UNIT – II

Selection of Material Handling Equipment

Factors affecting for selection, Material Handling Equation, Choices of Material Handling Equipment, General analysis Procedures, Basic Analytical techniques, the unit load concept Selection of suitable types of systems for applications, Activity cost data and economic analysis for design of components of Material Handling Systems, functions and parameters affecting service, packing and storage of materials.

UNIT – III

Design of Mechanical Handling Equipment

Design of Hoists, Drives for hoisting, components, and hoisting mechanisms, rail traveling components and mechanisms, hoisting gear operation during transient motion, selecting the motor rating and determining breaking torque for hoisting mechanisms. Design of Cranes, Hand-propelled and electrically driven E.O.T overheat traveling cranes, Traveling mechanisms of cantilever and monorail cranes, design considerations for structures of rotary and cranes with fixed radius, fixed post and overhead traveling cranes, Stability of stationary rotary and traveling rotary cranes.

UNIT – IV

Design of load lifting attachments

Load chains and types of ropes used in Material Handling System, Forged, Standard and Ramshorn Hooks, Crane Grabs and Clamps, Grab Buckets, Electromagnetic Design consideration for conveyor belts, Application of attachments.

UNIT – V

Study of systems and Equipment used for Material Storage

objectives of storage, Bulk material handling, Gravity flow of solid through slides and chutes, Storage in bins and hoppers, Belt conveyors, Bucket-elevators, Screw Conveyors, cabin vibratory Mobile racks etc.

Text Books:

1. Material Handling Equipments - N. Rudenko - Peace Publishers, Moscow.
2. Material handling System Design - James M. Apple, John-Wiley Publication, New York.

Reference Books:

1. Materials Handling Principals and Practice - Allegri T H - CBS Publication, New Delhi
2. Material Handling - John R. Immer - McGraw Hill Co. Ltd., New York.
3. Material Handling in Machine shops - Machinery Publication Co. Ltd., London.
4. Material Handling Equipment - M. P. Nexandrn - MIR Publication, Moscow.
5. Bulk Solid Handling - C. R. Cock and J. Mason - Leonard Hill Publication Co. Ltd. U.S.A.
6. Material Handling Hand Book - Kulwiac R. A - John Willy Publication, New York.

Course outcomes

- The students will be able to identify material handling equipment requirements for a specific process and for various locations and working conditions
- The students will be able to understand the benefit of an efficient material handling system
- The students will be able to recognize the importance of material storage equipments.
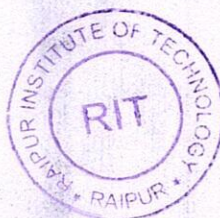
PRINCIPAL
RAIPUR INSTITUTE OF TECHNOLOGY
CHHATAUNA, MANDIRHASAUD, RAIPUR (C.G.)

A PROJECT REPORT

ON

"BELT OIL SKIMMER"

A thesis submitted to

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

SINCE 1999
RITEE

For partial fulfillment of the award of degree

BACHELOR OF ENGINEERING

IN

MECHANICAL ENGINEERING

BY

HIMANSHU JOSHI   (3123715073)

SHIKHAR SINHA   (3123715074)

MANISH SHUKLA   (3123715075)

PRAJJAWAL KHARE   (3123715076)
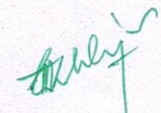
UNDER THE GUIDANCE OF:-

Dr. PRAVIN BORKAR (PROF.)

DEPARTMENT OF MECHANICAL ENGINEERING

RAIPUR INSTITUTE OF TECHNOLOGY, RAIPUR

Chhatauna,Mandir Hasaud,Raipur(C.G.)India-492110

SESSION 2018-2019

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