

DETAILS OF NOVEL ENGAGING COURSES

Name of Faculty	Gavendra Norkey
Course Name/Code	3D Printing (2000001)
Objectives	To gain knowledge and skills related to 3D printing technologies or Additive Manufacturing (AM).
Content	<ul style="list-style-type: none">• Introduction: Additive manufacturing, evolution, origin, manufacturing cycle, advantages and disadvantages, difference between CNC and AM.• Classification of AM:• AM Techniques: SLS, SLM, DMLS, FDM, LOM and Equipment's• Materials: Polymers, Metals, Non-Metals, Ceramics Process, Process parameter, Process Selection for various applications• Applications
Contact hrs. per semester	30
Outcomes	After completion of this course, the students will be able to: <ol style="list-style-type: none">1. Develop models for 3D printing.2. Select a specific material for the given application.3. Select a 3D printing process for an application.4. Produce a product using 3D Printing or Additive Manufacturing (AM).

Name of Faculty Mentor	Vandana Vikas Thakare
Course Name/Code	Amateur Radio Communication (2000002)
Objectives	To make students understand the use of dedicated radio frequency spectrum (Amateur Band) for non-commercial exchange of messages, wireless experimentation, emergency communication, etc. without internet and cell.
Content	Elementary Electricity, Magnetism and Semiconductor Devices Radio Receivers and Transmitter Radio Wave Propagation Antennas Frequency Measurement. Radio Regulations and Q codes Space Communications Functioning of HAM Radio station
Contact hrs. per semester	30
Outcomes	After completion of the course, students will be able to: <ul style="list-style-type: none"> • Describe the basics of Radio Transmission and Reception. • Explain the functioning of antennas for wireless communication. • Explain dedicated radio frequency spectrum for non-commercial exchange of messages • Explain wireless emergency communication without internet and mobile.

Name of Faculty Mentor	Sharad Agrawal
Course Name/Code	Design Skills Using Simulation Software(2000003)
Objectives	<ol style="list-style-type: none"> 1. To understand design and simulation software/Techniques 2. To provide technical knowledge and information about analytical/Simulation tools
Content	<ol style="list-style-type: none"> 1. Concept Generation, Conventional and Modern Design Process, Factor of Safety, Design Standards 2. Basic Introduction of Industrial Design, Design for Reliability and Quality 3. 2D and 3D commands using AUTOCAD software 4. Introduction to FEM, 1D,2D and 3D elements, Solid Modelling, Meshing, Boundary conditions, Post Processing 5. Structural, Linear, Thermal, Bucking Analysis of Engineering components
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Analyze the latest trends/approach in Design field 2. Apply the knowledge in design related projects 3. Analyse technical aspects related to Design and simulation field 4. Formulate strategies by participating the work in design/ R&D field

Name of Faculty Mentor	D K Jain
Course Name/Code	Data Analysis Skills(2000004)
Objectives	<ul style="list-style-type: none"> • To equip students with tools to collate, organize and draw valuable inferences from large data. • To provide students with information about latest methods/techniques data analysis • To help students understand the capabilities and limitations of data analysis as a tool..
Content	<ul style="list-style-type: none"> • Inferential Statistics/ Descriptive Statistics • Management/Decision Based/Case Solving Skills • Coding/Tool based Skill
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Solve decision problems in different settings • Apply statistical skills and employ them in real life • Analyze complex unstructured business problems • Formulate appropriate courses of action for a given managerial situation

Name of Faculty Mentor	Karuna Markam
Course Name/Code	Robotics (2000007)
Objectives	To facilitate students to learn, understand and design robotics.
Content	<ol style="list-style-type: none"> 1. Explanation about basics of robotics including different types of sensors, motors and their working principles. 2. Basics of python, C++, JavaScript. 3. Competitive programming. 4. Basics of Arduino 5. Basics of Aero modelling 6. Working principles of RC Plane , Line Follower, Maze Solver and Drone
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Develop creativity and engineering skills through robotics. 2. Build self-confidence, teamwork and leadership. 3. Apply real time robot applications

Name of Faculty Mentor	Vedansh Chaturvedi
Course Name/Code	Vehicular Skill Development(2000008)
Objectives	<ol style="list-style-type: none"> 1. To provide opportunities for student's enrichment of automotive related knowledge and skills. 2. To provide opportunities for students to understand working of BAJA, Go-Kart, and other racing competitions. 3. To provide opportunities for students to understand the software/Techniques used in automotive vehicles. 4. To motivate students, participate in national level racing competitions.
Content	Introduction, History, Basic Structure, Classification, e-Vehicles/Solar Vehicles, Prime Mover and Power System, Transmission System, Steering System, Braking Systems, Auxiliaries, Concepts of Racing vehicles, Recent trends in automobile, Software used in drawing/Design of Automotive components.
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Describe the working principles of automotive vehicles. • Classify the different automotive vehicles as per energy used • Analyse the latest trends in automobile field. • Design automobile models on different software.

Name of Faculty Mentor	Amit Kumar Manjhvar
Course Name/Code	Animation(2000009)
Objectives	<ol style="list-style-type: none"> 1. To identify animation as a particular form of visual communication. 2. To identify the major technological developments and aesthetic movements in the history of animation. 3. To understand the importance of new media technology. 4. To learn about the production of effective educational and entertainment programmes for different fields.
Content	<ol style="list-style-type: none"> 1. Early Animation 2. Animation Techniques 3. Education for Media 4. 2D Graphic and Animation
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Identify animation as a particular form of visual communication • Understand the establishment of films practices & its basics techniques. • Use the techniques of traditional hand drawing methods. • Apply knowledge gained to real world scenarios • Create animation using basics shapes and sketching methods.

Name of Faculty Mentor	Punit Kumar Johari
Course Name/Code	Digital Learning (Part I - 2000010, Part II-2000011)
Objectives	<ol style="list-style-type: none"> 1. To understand principles, concepts and issues concerning the use of digital technologies to support learning, and apply these in their own practice 2. To understand the effect of Computer Based Information Systems (CBIS) on an organization 3. To acquire sufficient IT skills and knowledge to appreciate (evaluate) a CBIS
Content	Part I : Introduction to Spreadsheet Modelling, Presentation of Quantitative Data, Analysis of Quantitative Data, Presentation of Qualitative Data, Analysis of Qualitative Data, Inferential Statistical Analysis of Data.
	Part II: Advance Data Analysis: Modelling and Simulation, Solver, Scenarios, and Goal Seek Tools, Data Visualization Tools and Techniques like Excel, Tableau etc.
Contact hrs. per semester	30
Outcomes	Part I: After completion of the course, students will be able to: <ul style="list-style-type: none"> • Analyse a range of locally available digital technologies • Explore digital technologies that can be used to support analytical learning. • Participate in an organization’s information systems and technology decision-making processes. • Identify ways information systems & technology may improve an organization’s performance, including improving organizational processes, decision-making, and collaboration.
	Part II: After completion of the course, students will be able to: <ul style="list-style-type: none"> • Use computer-based information systems and technologies to solve business problems. • Analyze business scenarios and make recommendations regarding the strategic use of IT. • Demonstrate competency in using tools, techniques, methodologies, and practices of various forms of the systems development life cycle. • Apply MIS knowledge sets, skills, and tools to a real-world complex problem

Name of Faculty Mentor	Deep Kishore Parsediya
Course Name/Code	Elements of Photographic Skills(2000012)
Objectives	<ul style="list-style-type: none"> • To Develop Photographic Skills among Students • To empower the students to become young short film makers or photographers.
Content	Basics of photography, Creative images with emotional responses, photo with story, tips for effective photography & videography, photo editing.
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Know the basics of photography and video-graphy. • Create short film and professional videos. • Apply the different editing concepts on photographs. • Use professional techniques to develop effective photo/ video.

Name of Faculty Mentor	Aditya K. Agarwal
Course Name/Code	Environment Protection (Part I – 2000013, Part II- 2000014)
Objectives	<ol style="list-style-type: none"> 1. To imbibe habits & lifestyle for minimum waste generation and management. 2. To create awareness for proper management of waste with right attitude. 3. To implement efficient solid waste management practices in the city.
Content	<p>Part I</p> <ol style="list-style-type: none"> 1. Solid waste management & other environment issues. 2. Field Practices. 3. Preparation of inventory of waste management 4. Action against environmentally unsound practices like unsafe disposal of wastes etc. <p>Part II</p> <ol style="list-style-type: none"> 1. Solutions to waste management issues. 2. Wealth out of waste. 3. Importance of World Environment day, World Water day, etc.
Contact hrs. per semester	30
Outcomes	<p>Part I</p> <p>After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Identify various environmental issues that concerns public. 2. Illustrate waste management practices.. 3. Devise innovative ideas for waste management. 4. Create environmental awareness in the society <p>Part II</p> <ol style="list-style-type: none"> 1. Apply various solutions to waste management problems. 2. Inculcate proper waste management practices among the public. 3. Create environmental awareness in the society 4. Plan an effective waste management system.

Name of Faculty Mentor	M K Sagar	
Course Name/Code	National Service Scheme (NSS) (Sem. III – 2000016, Sem. IV- 2000017, Sem. V- 2000018, Sem.VI- 2000019)	
Objectives	<ul style="list-style-type: none"> • To understand the community in which the students work. • To understand themselves in relation to their community. • To identify the needs and problems of the community and involve in problem- solving. • To develop a sense of social and civic responsibility. • To utilize knowledge in finding practical solution to individual and community problems. • To develop competence required for group- living and sharing responsibilities. • To gain skills in mobilising community participation. • To acquire leadership qualities and democratic attitudes. • To develop capacity to meet emergencies, natural disasters, practice national integration and social harmony. 	
Content	Semester-III	Semester-IV
	<p>Unit-I: Introduction and Basic Concepts of National Service Scheme</p> <p>A. History, philosophy, aims & objectives of NSS</p> <p>B. Emblem, flag, motto, song, badge etc.</p> <p>C. Organizational structure of N.S.S. at National, State, University and College Levels</p> <p>D. Advisory committee and their functions with special reference to Director, Programme officer, N.S.S. group leader and N.S.S. volunteers in the implementation.</p> <p>Unit-II: NSS Programmes and Activities</p> <p>A. Concept of Regular activities, special camping, Day Camps</p> <p>B. Basis of adoption of village/slums, Methodology of conducting Survey</p> <p>C. Financial pattern of the scheme</p> <p>D. Other youth programme/schemes of GOI</p>	<p>Unit-I: Social Harmony and National Integration</p> <p>A. Need of National integration,</p> <p>B. Various obstacles in the way of National Integration; such as caste, religion, language and provisional problems etc.</p> <p>C. Indian history and culture</p> <p>D. Role of youth in peace-building and conflict resolution</p> <p>E. Role of youth in Nation building</p> <p>Unit-II: Family and Society</p> <p>A. Concept of family, community, and society</p> <p>B. Growing up in the family- dynamics and impact</p> <p>C. Human values</p> <p>Unit III: Special Programme/ Activities-I</p> <p>A. Health awareness</p> <p>B. Medical Camp</p> <p>C. First-aid</p> <p>D. One Day Camps</p> <p>E. Distribution of stationary/ study material to needy students</p>

	<p>E. Coordination with different agencies F. Maintenance of the Diary Unit-III: N.S.S. Regular Activities-I A. Volunteerism and Shramdan B. Plantation C. Yoga and Meditation D. Voter Awareness Programme E. Literacy Cum Awareness Programme F. Traffic Awareness Programme G. Cultural event on NSS Day H. Blood Donation I. Swachhh Bharat Abhiyan J. Awareness on Air Pollution/ Rally on Eco-Deepawali K. Activities assigned by Government of India/State Government/AICTE/ UGC/ University/Institute, etc.</p>	<p>F. Awareness programme on Economic Social Political and Cultural impacts. G. Food and Nutrition Unit-IV: Special Camping programme-I A. Nature and its objectives B. Selection of camp site and physical arrangement C. Organization of N.S.S. camp through various committees and discipline in the camp. D. Activities to be undertaken during the N.S.S. camp. Use of the mass media in the N.S.S. activities.</p>
--	---	---

	Semester-V	Semester-VI
	<p>Unit -I: Citizenship</p> <ul style="list-style-type: none"> A. Basic Features of Constitution of India B. Fundamental Rights and Duties C. Human Rights D. Consumer awareness and the legal rights of the consumer E. RTI <p>Unit - II: Youth and Yoga</p> <ul style="list-style-type: none"> A. History, philosophy and concept of Yoga B. Myths and misconceptions about yoga C. Different Yoga traditions and their Impacts D. Yoga as a preventive, promotive ,and curative method E. Yoga as a tool for healthy lifestyle F. Home Nursing <p>Unit-III: N.S.S. Regular Activities-II</p> <ul style="list-style-type: none"> A. Gender equality/ Women empowerment/ Self defense B. Social Harmony and National Integration C. National Youth Day D. Rally/ awareness programme on HIV/ AIDS E. Anti- Tabacco- Rally/ Awareness programme F. Working with NGO/ Health Department/ Municipal Corporation/ City Administration G. Waste Management H. Natural resources management (Rain water harvesting, energy conservation, waste land development, soil conservations and afforestation) I. One-day Camp for awareness regarding government scheme at adopted village J. Awareness programme regarding How to qualify for Technical education 	<p>Unit - 01: Disaster Management</p> <ul style="list-style-type: none"> A. Introduction to Disaster Management, classification of disasters B. Role of youth in Disaster Management <p>Unit III: Special Programme/ Activities-I</p> <ul style="list-style-type: none"> A. Health awareness B. Medical Camp C. First-aid D. One Day Camps E. Distribution of stationary/ study material to needy students F. Awareness programme on Economic Social Political and Cultural impacts. G. Food and Nutrition <p>Unit-III: Special Camping programme-II</p> <ul style="list-style-type: none"> A. Nature and its objectives B. Selection of camp site and physical arrangement C. Organization of N.S.S. camp through various committees and discipline in the camp. D. Activities to be undertaken during the N.S.S. camp. E. Use of the mass media in the N.S.S. activities.

Outcomes

After the completion of course, the student will be able to:

1. Understand the community and relation to their community
2. Develop the community problem-solving behavior
3. Develop a sense of social and civic responsibility.
4. Accept the new challenges and ready to face the problems with confidence.
5. Motivate themselves to participate and lead the work.
6. Enhance the reading, learning, communication, presentation & interpersonal skills.

Name of Faculty Mentor	B.P.S. Bhadoria
Course Name/ Code	National Cadet Corps(NCC) (Sem. III – 2000020, Sem. IV- 2000021, Sem. V- 2000022, Sem.VI- 2000023)
Objectives	<ol style="list-style-type: none"> 1 .To create human resource of organized, trained & motivated youth, 2 .To provide a suitable environment to motivate the youth to take up a career in the Armed forces. 3.To develop character, comradeship, discipline, leadership, outlook, spirit of adventure and ideas of selfless service amongst the youth of the country
Content	<p>SEMESTER 3 Personality development, leadership, Disaster management, Adventure, Border and coastal Areas. Drill, FC&BC, Map reading, weapon training, social service and community development, obstacle training, Camp.</p> <p>SEMESTER 4 Personality development, leadership, Disaster management, Environmental awareness and conservation, General awareness, Armed forces. Drill, FC&BC, Map reading, weapon training, social service and community development, Health and hygiene</p> <p>SEMESTER 5 Personality development, Border and coastal Infantry weapons, Military history. Drill, FC&BC, Map reading, weapon training, social service and community development, obstacle training, Camp.</p> <p>SEMESTER 6 Personality development, Border and coastal areas, Armed forces, Communication, Military history. Drill, FC&BC, Map reading, weapon training, Communication, social service and community development, Infantry weapons.</p>
Outcomes	<p>Semester 3.</p> <ol style="list-style-type: none"> 1. Acquaint themselves with the different types of leadership 2. Recognize the importance of time and its management 3. Have an insight into weapon training for NCC cadets 4. Understand the technical terms their meaning and use them training with Arms. 5. Develop awareness to social service and community development. <p>Semester 4.</p> <ol style="list-style-type: none"> 1. Analyze the different factors that influence personality and shape it 2. Appreciate the grace and dignity in the performance of drill. 3. Develop awareness social service, community development and health and hygiene. <p>Semester 5</p> <ol style="list-style-type: none"> 1. Appreciate the improvement of drill, FC and BC, MR, WT 2. Examine the principles of effective communication and the barriers in communication <p>Semester 6</p> <ol style="list-style-type: none"> 1. Develop the qualities of patience and confidence and become better individuals 2. Assess the different steps to be followed while arms drill is conducted 3. Appreciate the diversity in personality of individuals and its influence on their behaviour 4. Improvement of drill FC and BC, MR, WT, communication, infantry weapons.

Name of Faculty	Archana Tiwari
Course Name/Code	Organic Farming (2000028)
Objectives	<p>1.To learn natural pesticides and their uses.</p> <p>2.To know right cultivation at right time.</p> <p>3.To learn to maintain soil and crop health.</p>
Content	Introduction to organic farming and its status. Organic farming and Human health. Components of organic farming, concepts principles. Compost production. Soil and crop health management.
Contact hrs. per semester	30 (in one semester)
Outcomes	<p>After completion of course students will be able to:</p> <ol style="list-style-type: none"> 1. Appreciate the advantages of organic forming 2. Plan Organic Farming on small scale

Name of Faculty Mentor	B.P.S. Bhadoria
Course Name/Code	Games & Sports (Sem. III -2000032, Sem. IV - 2000033, Sem. V - 2000034, Sem.VI-2000035)
Objectives	<ol style="list-style-type: none"> 1. To provide opportunity for every student to participate in sports 2. To Develop physical fitness 3. To Develop Leadership quality among students
Content	<p>Semester 3 Basketball, Volleyball, Handball, Hockey History, Rules, Techniques, Tactics, Playfields, Equipment, Tournaments, Awards and personalities.</p> <p>Semester 4 Cricket, Table Tennis, Tennis, Badminton History, Rules, Techniques, Tactics, Playfields, Equipment, Tournaments, Awards and personalities.</p> <p>Semester 5 Athletics, Kho - Kho , Kabaddi, Chess. History, Rules, Techniques, Tactics, Playfield, Equipment, Tournaments, Awards and Personalities.</p> <p>Semester 6 Football, Swimming, Yoga History, Rules, Techniques, Tactics, Playfield, Equipment, Tournaments, Awards and personalities.</p>
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <p>Semester 3 : Apply the passing, receiving, dribbling, shooting skills in Basketball, Volleyball, Handball & Hockey; Develop team spirit</p> <p>Semester 4 : Apply batting, bowling, fielding, catching, grip, service, strokes, stance skills in Cricket, Table tennis, Tennis & Badminton; Develop team spirit</p> <p>Semester 5 : Track and field events, starting, finishing, jumps and throws, raiding, holding, raider, dodging, faking. Develop team spirit</p> <p>Semester 6 : Develop Awareness and knowledge for dribbling, kicks, heading, goalkeeping, strokes, physical and mental development, Develop team spirit</p>

Name of Faculty Mentor	Sunita Sharma
Novel Engaging Course	Alternate Therapies (Sem. III -2000038, Sem. IV - 2000039, Sem. V - 2000040, Sem.VI-2000041)
Objectives	To create awareness about alternate therapies like Ayurveda, Naturopathy, Physiotherapy and Panchkarma and their health benefits.
Content	<p>Sem.–III Alternative Therapy : Ayurveda :Definition of swastha&swasthavritta. Arogya lakshana, swasthavrittaprayojanam, WHO definition of Health.Introduction to basic principles of Ayurveda and their significance.Padartha: Lakshana, Bhava and Abhavapadartha, Padartha according to Charaka. Basics of Drava, Panchbhuta,Kaala, dik, aatma. Common Herbs used for skin, gastric, heart, liver, kidney and lungs related common problems.Role of turmeric in cancer treatment. Dietetic standards, Proximate principles of Food, Nutritional requirements, Sources and deficiency diseases of Protein, Carbohydrate, Fat, Vitamins and Minerals. Concept of balanced diet in Ayurveda, Nitya sevaneeyadravya, Balanced diet for different sections of people in the society, Social aspects of nutrition. Aharavarga - Dhanyavarga(Cereals and millets), Shaka and Haritavarga (Leafy and Non leafy vegetables), Kanda varga (roots and tubers), Phalavarga (Fruits), Tailavarga(Fats and Oils), Ikshuvarga& Madhya varga(Alcoholic Beverages), Dugdhavarga (Milk and Milk products), Masala and vyanjanadravyas (Spices & Condiments), Kritannavarga (Prepared Food), Mamsavarga (Meat type food)</p> <p>Sem.-IV Alternative Therapy: Naturopathy:Definition, history, aims and objectives Theories as per Western school of Naturopathy Indian school – Panchabhutopasana Relation of Ayurveda and Naturopathy Importance of Naturopathy in present era. Jalachikitsa(hydrotherapy) – Hot water treatment, Cold water treatment, foot and arm bath, Spinal bath, hip bath, abdominal wet pack, Steam bath, enema and whirl pool bath. Mrittikachikitsa (Mud therapy) Types of soil, doctrine of mud selection, mud bath. Suryakiranasevana (sun bath - heliotherapy) Mardana Massage – different methods and effects. Diet types – Soothing, Eliminative, onstructive, Positive and negative diet, Acidic and alkaline diet pavasachikitsa(Fasting therapy) – Importance, types, therapeutic effects of fasting. Visramachikitsaupayoga.</p> <p>Sem.-V Alternative Therapy: Physiotherapy Practices :Definition, Utility and Importance of Physiotherapy. Basic Knowledge of Static exercise, Infrared, Short wave diathermy, Electromagnetic therapy, Wax bath therapy, Ultrasonic therapy. General information on Physiotherapy practices in Obstructive and restrictive lung conditions, Management of breathlessness. Sports Injury and Principles of injury prevention. Principles of training & Rehabilitation in sports injuries Post operative management of knee, hip, shoulder, elbow, wrist, ankle and foot.</p> <p>Sem.-VI Alternative Therapy: Panchakarma :Introduction to Panchakarma, Panchakarma and Shodhana, its importance for promotion of health, prevention and treatment of diseases. Introduction to Trividha Karma- Purva, Pradhana and Pashchat Karma in relation to Shodhana and their importance. Etymology and Definition of Sneha and Snehana, BāhyaSnehana, ĀbhyantaraSnehana. Etymology and efnition of Sveda and vedana. Etymology, definition and importance of Vamana Karma, Etymology, definition and importance of Virechana Karma, Etymology, definition and importance of Basti as Ardha-Chikitsa, Etymology, definition, Significance of Nasya Karma.Definition, importance and Types of Raktamokshana. Observation of different procedures of Panchakarma, Assistance to the procedure under guidance of Panchakarma specialist Panchakarma.</p>

Contact hrs	20
No. of sem. required	4
Mode of Delivery	Online/offline lectures, Visit to Charak Udyaan for identification of herbal medicines, Preparation of herbarium, Quiz Competition on Importance of Ayurveda in Daily life, Exhibition on Herbs and their products, Organizing Camp, Visit to rehabilitation centre to learn the basic physiotherapy practices, Demonstrations on Physiotherapy Practices, Visit to Panchkarma Centre to learn common panchkarma kriyas, Visit to Vivekanand Needam to learn aasnas, Join the camp at Vivekanand Needam to learn Naturopathy, Seminars on Importance of Alternative medicines
Performance assessment	Conduction of Activities: 20% Participation in activities: 20% Presentation:30% Report Submission:30%
Outcomes	After completion of the course, students will be able to: <ol style="list-style-type: none"> 1. Describe health and healing process 2. Explain the cause and symptoms of common illness 3. Identify the importance of alternative medicines for healthy life 4. Apply alternative medicines for the management of common health problems.
External Mentors /Collaborations	1.College of Ayurveda, Gwalior 2.Nidanam Physiotherapy and Rehabilitation Centre 3.College of Professional Studies, BIMR, Gwalior 4.Mangalam Ayurved Hospital and Panchkarma Research Center 5.Sai Ram Ayurveda &Panchkarma Chikitsa Kendra 6.NIRAMAYA : "Academy of Yoga and Natural Therapy", Vivekanand Needam, Gwalior

Name of Faculty Mentor	Vishal Chaudhary
Course Name/Code	Holistic Health (Part I – 2000042, Part II- 2000043)
Objectives	<ul style="list-style-type: none"> • To inspire young minds and promote healthy living. • To spread holistic behaviour among colleagues and campus. • To promote positive mindset post covid-19 pandemic. • To develop skill enhancement and personality of the student.
Content	Part I Promoting positive mindset covid-19 post pandemic, yoga sessions, awareness campaigning.
	Part II Webinars on social topics, social and holistic conclave in the campus.
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <p>Part I</p> <ul style="list-style-type: none"> • Perform yoga, meditation to improve health. • Promote healthy and inspired living in society • Spread happiness and skill enhancement in pandemic situation. <p>Part II</p> <ul style="list-style-type: none"> • Conduct holistic behaviour. • Develop awareness towards social problems • Act as a responsible team mate.

Name of Faculty Mentor	Pranshi Jain
Course Name/Code	Sculpture Making (Part I – 2000046, Part II - 2000047)
Objectives	<p>Part I (Sculpture Making: Clay) This course will enable students to:</p> <ol style="list-style-type: none"> 1. Build curiosity and creativity. 2. Enhance sculpting skills. 3. Learn the associated theories and history. 4. Develop the thought process into physical model. 5. Enhance innovative thinking. <p>Part II (Sculpture Making: Wood, Metal and Waste) This course will enable students to:</p> <ol style="list-style-type: none"> 6. Improve Sculpting skills. 7. Develop understanding of tools and techniques for carving hard materials. 8. Transform ideas into physical products. 9. Enhance innovative thinking. 10. Develop understanding of sculpting with varied materials.
Content	<p>Part I:</p> <ol style="list-style-type: none"> 1. Importance of course 2. Clay as a Sculpting material 3. Basics of Sculpting, concept making. 4. History and Importance in Architectural education. 5. Other materials (Epoxy clay, air-dry clay, polymer clay etc) 6. Hands-on modelling and exercises <p>Part II:</p> <ol style="list-style-type: none"> 7. Importance of course 8. Sculpting with Hard Materials like wood and metal. 9. Theories and history of Sculpting on Hard materials. 10. Tools and techniques for wood carving. Hands-on exercise on wood. 11. Tools and techniques for Metal carving. Hands-on exercise on metal. 12. Waste as a Sculpting material.
Contact hrs. per semester	30
Outcomes	<p>Part I After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Learn how to use pottery clay as sculpting material. • Learn to evolve concept into a model. • Express ideas through modeling. • Understand the applicability of new materials like polymer clay, epoxy clay. • Develop innovative designs and forms. <p>Part II After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Learn the basics of sculpting with hard materials. • Understand various tool and techniques associated. • Create models in readable scales. • Develop innovative products and forms.

Name of Faculty Mentor	Sanjeev Khanna
Course Name/Code	English Literary Skills (2000048)
Objectives	<ul style="list-style-type: none"> • To hone the talent of students toward literary and artistic activities and interests of a student. • To provide a socio-cultural platform to students to reveal the artist in him and to socialise with other students.
Content	Literary Activities like creative writings, open mic, skit, brain storming sessions, debates, etc.
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Infer meanings of text from what is written and what is not written • Present his thought lucidly • Inculcate fluency in spoken English • Socialise with others

Name of Faculty Mentor	Angad Singh Ojha
Course Name/Code	Hindi Language Skills (2000049)
Objectives	<ol style="list-style-type: none"> 1. To enhance the basic understanding of Hindi grammar. 2. To create the ability of drafting in Hindi 3. To create efficiency of expressing views in Hindi effectively and grammatically correct.
Content	Sandhi, samas, alankar, synonyms, one word substitution, administrative vocabulary, drafting of official letter, note sheet , advertisement, circular, notification, essay, translation of Hindi to English and vice-versa, general introduction of Hindi literature as Kavita, Kahani, Upanyas, Natak , etc.
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Write grammatically correct Hindi document. • Speak Hindi confidently • Qualify Hindi paper in various competitive exams.

Name of Faculty Mentor	Anish P. Jacob
Course Name/Code	Preliminary Journalism Skills (2000050)
Objectives	<ul style="list-style-type: none"> • To impart the basic knowledge of Journalism and related areas of studies. • To equip the learner with reporting & writing skill • To inculcate professional ethics in the learner.
Content	Basics of journalism, Types of Journalism, Journalist Vs Reporter, Content writing, reporting skills, communication skills, creative writing, technical writing, social media & its impact, public relations
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to :</p> <ul style="list-style-type: none"> • Explain the basics of journalism • Apply basic writing skills • Analyze the types of journalism • Display good oral communication skills

Name of Faculty Mentor	Anjula Gaur
Course Name/Code	Food and Nutrition (2000052)
Objectives	To provides basic understanding of the correlation between food and health.
Content	<ol style="list-style-type: none"> 1. Food, Nutrition, Health and Hygiene Interrelationship 2. Malnutrition and Assessment of Nutritional Status 3. Balance diet 4. Nutraceuticals and Functional Foods 5. Micro nutrients in food 6. Conserving and enhancing nutritive value of Food 7. Medicinal Properties of the Food Ingredients
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Utilize knowledge of food & nutrients in maintaining good health • Identify sources of nutrients in locally available food • Summarize the medicinal value of food.

Name of Faculty Mentor	Praveen Bansal and Swati Gupta
Course Name/Code	Career Guidance & Preparedness (200053)
Objectives	<ol style="list-style-type: none"> 1. To provide guidance and motivation to students in exploring various career avenues. 2. To conduct sessions by inviting eminent personalities from academia, industries and renowned organizations 3. To guide students and support to be a industry ready professionals
Content	<p>1. Career Guidance Workshops: Importance of career guidance and career development, Exercises on self-knowledge with emphasis on personality, values, interests and abilities, Guidance on Job Applications (CV writing, finding employment, cover letters etc), Occupational and study option awareness.</p> <p>2. Counseling Sessions: Healthy relationships, Developing your identity, Team building and cohesion, Assertiveness, Social skills training.</p> <p>3. Recruitment Preparation: Identify the key skills of a job, Use social media and conventional advertising, Choose appropriate short listing and selection techniques, Prepare and conduct effective interviews, Make selections based on evidence.</p> <p>4. Training: Goals, Resources, Effective use of resources and create success story.</p> <p>5. Connect employers to motivate students.</p>
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Explore job opportunities in different domain • Prepare for competitive examinations such as GATE/IES/PSUs • Develop skills for future learning • Set career options

Name of Faculty Mentor	Manish Dixit & Ankita Sengar
Course Name/Code	Public Speaking (Part I – 2000058, Part II- 2000059)
Objectives	<p>Part I</p> <ol style="list-style-type: none"> 1. To enable the students to understand the process of effectively communicating with others. 2. To organize their ideas logically. 3. To enhance their language, including vocabulary, grammar, and narrative skills <p>Part II:</p> <ol style="list-style-type: none"> 1. To make students to improve oral presentations, extempore, speech, debate, etc. 2. To develop effective communication skills which will build their morale and efficiency.
Content	<p>Part I</p> <ol style="list-style-type: none"> 1. Need and Importance of the Course 2. Building Confidence in speaking 3. Brainstorming 4. Storytelling 5. Discussions 6. Picture Narrating <p>Part II</p> <ol style="list-style-type: none"> 1. Conversation strategies 2. Key to effective Communication 3. Interviews 4. Improving Public Speaking Skills 5. Leadership skills 6. Speaking values and ethics
Contact hrs. per semester	30
Outcomes	<p>Part I After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Develop the ability to speak and express effectively with Confidence. • Develop overall skills in academics, curricular and extracurricular activities • Improve thinking, listening and speaking skills <p>Part II After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Recognize the goals and benefits of public speaking • Develop active listening skill and respond productively to others. • Employ verbal and nonverbal presentation skills for confidently and effectively delivering oral messages. • Create and present organized and focused messages in public speaking settings

Name of Faculty Mentor	Rajni Ranjan Singh
Course Name/Code	Coding Skills (Sem. III – 2000060, Sem. IV- 2000061, Sem. V- 2000062, Sem.VI- 2000063)
Objectives	<ol style="list-style-type: none"> 1.To provide a platform to the students with different interests such as coding, Machine Learning and Web Designing. 2. To prepare for various competitions like ACM-ICPC, Google Code Jam, etc. 3. To provide a forum for the discussion of theory and applications of algorithms.
Content	<ol style="list-style-type: none"> 1) Third Semester - Procedural Programming 2) Fourth Semester - Object Oriented Programming 3) Fifth Semester - Web Designing 4) Sixth Semester - Information Security, Machine Learning
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <p>Sem. -3</p> <ul style="list-style-type: none"> Implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems. Develop programs using decision making and looping concepts Implement Arrays, strings, structures and files <p>Sem. -4</p> <ul style="list-style-type: none"> Implement the concepts of object-oriented programming Illustrate the process of data file manipulations using C++/Java To code, document, test, and implement a well-structured, robust computer program using the C++/Java programming language. <p>Sem. -5</p> <ul style="list-style-type: none"> Develop Web Pages using HTML and CSS Develop fully functioning website and deploy on a web server Design responsive web pages including multimedia contents <p>Sem.- 6</p> <ul style="list-style-type: none"> Analyze software vulnerabilities and security solutions to reduce the risk of exploitation Implement cyber security solutions and use of cyber security, information assurance, and cyber/computer forensics software/tools. Implement machine learning methods to solve real-world problems

Name of Faculty Mentor	Mahesh Parmar
Course Name/Code	Emerging Technologies in Computer Science (2000064)
Objectives	To expose students to new technologies and programming skill for improving and learning about various computer science topics, such as computer programming, machine learning approach and data analysis.
Content	Python, List, tuple, sets, dictionaries, function, NumPy, pandas and Matplotlib, Introduction to AI, Differences between AI and machine learning, Linear regression, classification and clustering approaches in machine learning.
Contact hrs. per semester	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Write program in Python. • Identify machine-learning techniques suitable for a given problem. • Analyze simple problems using machine-learning approach. • Compare different data mining techniques like linear regression, classification, clustering.

Name of Faculty Mentor	Atul Chauhan			
Course Name/Code	Software Development (Sem. III – 2000066, Sem. IV- 2000067, Sem. V- 2000068, Sem.VI- 2000069)			
Objectives	<ul style="list-style-type: none"> • To inculcate the logical and analytical skills to the students for inhabiting the new developments in the field of software development. • To empower the students with hands-on experience. • To enable students to develop software/ application. 			
Content	<p>Semester 3 Linux, basic concepts in PHP / Python, MySQL, etc.</p> <p>Semester 4 Python, MySQL, Java, etc.</p> <p>Semester 5 Small software module development through PHP, Python, Java etc.</p> <p>Semester 6 Open-source Application development, Android Application and Web based application development through various languages.</p>			
Contact hrs. per semester	30			
Outcomes	<p>III Sem</p> <ul style="list-style-type: none"> • Formulate the computing problems • Recognize all possible solutions to given problem. • Identify the computer problems solutions tools. 	<p>IV Sem</p> <ul style="list-style-type: none"> • Solve the computing problems through programming. • Apply computing knowledge in given problem 	<p>V Sem</p> <ul style="list-style-type: none"> • Retrieve and manipulate data from one or more tables. • Update and insert data into the existing tables • Develop problem solving capability using Python 	<p>VI Sem</p> <ul style="list-style-type: none"> • Inculcate programming skills in different environment. • Use relevant language for development of web & android applications.

Name of Faculty Mentor	Versha Sinha
Course Name/Code	Photo Editing Software: Adobe Photoshop (2000070)
Objectives	<ul style="list-style-type: none"> ● Introduction to the Basics ● Learn all of the editing tools available in Photoshop. ● Design actual graphics that can be used for business or for fun.
Content	<p>Prerequisites: Adobe Photoshop software downloaded & Laptop to practice on.</p> <p>Week 1: Introduction to the software : To use the Home Screen, create new files, set up the Photoshop interface, open images, work with multiple files that are open at once, save and export files in different file formats.</p> <p>Week 2: Quick Start Photoshop for Image Editing : To make your images “POP”, retouch your photos in Photoshop, resize and save your images for social media.</p> <p>Week 3: Photoshop Layers : What layers are & how to use them, an overview of the layers panel, power of Photoshop Adjustment Layer.</p> <p>Week 4: Photoshop Tools : How to crop, straighten and fix perspective in Photoshop.</p> <p>Week 5: Photoshop Tools : How to color Images to B&W and B&W to color images.</p> <p>Week 6: Photoshop Tools : How to precisely edit photos in Photoshop using dodge, burn and sponge tools forediting, smudging, blending.</p> <p>Week 7: Photoshop Tools : How to Use the Tone Curve in Photoshop, basic color corrections that can be donewith the curves tool, the Levels tool to edit photos, how to add contrast with it.</p> <p>Week 8: Photoshop Tools : How to use the Stamp Tool, the Healing Tools for all retouching and the Eraser Tool inPhotoshop.</p> <p>Week 9: Photoshop Tools : “Selecting”, in Photoshop. Using the Marquee Selection tool, the Lasso tool, the Magic Wand tool, the Quick Mask mode, the Mask selection, etc and editing the photos.</p> <p>Week 10: Photoshop Tools : How to Use Photoshop filters and brushes for more creative edits. Taking creativity to the next level with Photoshop filters.</p> <p>Week 11: Adobe Photoshop Bridge : How to use free plugin Adobe Photoshop Bridge to manage digital assets,</p> <p>Week 12: Adobe Photoshop Actions : How to Use Photoshop Actions, a powerful tool for helping streamline the workflow. how to record specific steps taken to edit the photos and save it (as an action) to be re-used on other photos.</p> <p>Week 13: Light Effects : How to add light, enhance existing light, enhance and add color to the sunsets and sunrises, create lens leaks, add lens flare and much more.</p> <p>Week 14: Other Photo Editing Softwares : Information about other advanced photo editing softwares Adobe Lightroom,Coreldraw, etc.</p>
Contact hrs. per semester	30
Outcomes	Get a thorough understanding of how to use Adobe Photoshop for fun activities,college assignments or as a career opportunity .

Name of Faculty Mentor	Ankit Kumar
Novel Engaging Course Title	Basics of Technical Analysis in Stocks (2000071)
Objectives of Course	<ul style="list-style-type: none"> • To gain practical knowledge of technical analysis. • To Know how technical tools are used to predict the future behaviour of stocks. • To know how charting techniques are useful to take buy or sell decision. • To study market trends and movement.
Content	<p>Component 1:Introduction to stock market.</p> <p>Component 2:Introduction to Technical analysis and its core concepts.</p> <p>Component 3:Price Bars & Candle stick patterns.</p> <p>Component 4:Trading Gaps in market.</p> <p>Component 5:Trend lines and how to draw different trend lines.</p> <p>Component 6:Different Chart patterns and how to identify them.</p> <p>Component 7:Different types of Moving averages.</p> <p>Component 8:Momentum trading indicators.</p> <p>Component 9:How to use multiple trading indicators.</p> <p>Component 10:Various order types.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>This course will help learner to</p> <ol style="list-style-type: none"> 1. Make decisions on when to buy or sell a stock – without knowing anything about the company. 2. Know the management, without analysing the balance sheet & the profit and loss statement.

Name of Faculty Mentor	Satyam Shukla
Novel Engaging Course Title	Graphic Design (2000072)
Objectives of Course	This course will equip the learners with skills to understand the role of graphic design in presentations and vital elements of different modes of presentations.
Content	Graphic design, Importance of graphic in present world, skills require to present better, what observers look for when students present ideas, few examples of great presentations delivered like apple new product launch.
Contact hrs	30 hrs
Outcomes of Course	Students will be able to <ul style="list-style-type: none"> 1. Present their ideas through new ways of presentations and adding graphic elements 2. Communicate clearly in visual, verbal, and written forms using appropriate techniques

Name of Faculty Mentor	RICHA MISHRA
Novel Engaging Course Title	WORLD HERITAGE SITES: A BRIEF OVERVIEW (2000073)
Objectives of Course	<ol style="list-style-type: none"> 1. To understand the concept of World Heritage Sites. 2. To provide in-depth know how on the criteria's for World Heritage listings. 3. To understand the provisions under World heritage lists. 4. To develop the understanding of criteria's for the designated world Heritage Sites.
Content	<ol style="list-style-type: none"> 1. Understanding the basic concept of World heritage sites and Outstanding Universal Values. 2. Criteria's for listing World Heritage Site. 3. Concept of Authenticity and Integrity in World Heritage Sites. 4. World Heritage sites in India. 5. Case examples and understanding of criteria's for the designated world Heritage Sites.
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Learn what the concept of heritage and World Heritage Sites. • Recognize the provisions under World heritage lists. • Develop designation of Heritage as a heritage of "Outstanding Universal Value".

Name of Faculty Mentor	Abhilash Shukla
Novel Engaging Course Title	Basic and Advanced Excel (2000074)
Objectives of Course	Build a solid understanding on the Basics of Microsoft Excel
Content	<p>Introduction to spreadsheets, reading data, manipulating data. Basic spreadsheet operations and functions</p> <p>Introduction to the Data filtering capabilities of Excel, the construction of Pivot Tables to organize data and introduction to charts in Excel.</p> <p>Constructing various Line, Bar and Pie charts. Using the Pivot chart features of Excel.</p> <p>Understanding and constructing Histograms and Scatterplots</p> <p>Review Basic Formulas and Functions and explore Formula Tab</p> <p>Use advanced Financial Functions to calculate time value of money metrics.</p> <p>Write and use Logic functions.</p> <p>Write and use formulas and functions in Excel to perform text functions</p> <p>Write and use formulas and functions in Excel to perform lookup and reference functions</p>
Contact hrs	30 hrs
Outcomes of Course	<p>At the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> • Edit the worksheet (including inserting/deleting cells, columns, and rows), • Manage the Data by using sorting, filtering, consolidating, removing duplicates, data validation, and one-way lookups. • Create and apply several advanced excel functions to real world examples. • Create mathematical predictive regression models using the Regression tool in Excel • Visualize the data using scatter plots, column charts, pie charts, Slicers, Sparklines, and Pivot Tables.

Name of Faculty Mentor	Chayan Gupta
Novel Engaging Course Title	Shilpa Samhita : Philosophy of Indian Ancient Geotechnical Engineering (2000075)
Objectives of Course	<ol style="list-style-type: none"> 1) To understand the philosophy of ancient shilpa samhita. 2) To interpret scope and extent of shilpashashtra in engineering. 3) To relate the ancient geotechnical engineering with modern one. 4) To apply ancient knowledge in present engineering problems.
Content	Introduction to Shilpa Samhita: Terms and Terminology in Shilpa Samhita; Scope and Extent of Shilpashashtra; Shilpashashtra's, Vidhya's & Kala's Related with Geotechnical Engineering: Water Resources - Jala Shashtra; Surface Transport - Ratha Shashtra; Dwellings- Veshma Shashtra; Forts and Castles- Prakar Shashtra; Ancient Geotechnical Engineering: Geology; Rock Mechanics; Soil Engineering; Foundation Engineering; Environmental Geotechnology; Ground Improvements; Soil Stabilization; Earthen Structures, Case Studies.
Contact hrs	30 hrs
Outcomes of Course	<p>After completing this course, the student will be able to:</p> <p>CO 1: Explain the philosophy of ancient shilpa samhita.</p> <p>CO 2: Describe the scope and extent of shilpashashtra in engineering.</p> <p>CO 3: Compare the ancient engineering with modern one.</p> <p>CO 4: Apply ancient knowledge in present engineering problems futuristic pavements.</p>

Name of Faculty Mentor	Hemant Shrivastava
Novel Engaging Course Title	Fire Safety and Regulation in Building (2000076)
Objectives of Course	Understanding of Fire Hazards, Identify Various Fire Protection Systems and Implement Fire Safety Regulation.
Content	Fire alarm system and their types, Fire Suppression Agents, Types of Water Distribution Systems, System Readiness, Building Fire Hazards, Fire Safety in Building – Basic Principles, Fire Safety Management, Codes and Regulation
Contact hrs	30 hrs
Outcomes of Course	<p>Student will able to</p> <ol style="list-style-type: none"> 1. Explain the working of fire alarm systems, suppression systems, and portable fire extinguishers 2. Identify the various types of water storage devices, types of pipe material, and different types of valves in the water supply system 3. Apply fire safety principles, management, and regulation in the building.

Name of Faculty Mentor	Jayvant Choudhary
Novel Engaging Course Title	Developments in Pavement Construction: Past to Future (2000077)
Objectives of Course	<ol style="list-style-type: none"> 1) To briefly introduce the pavements and various factors affecting its design and performance. 2) To understand the historical significance and design principles of Roman, French and British Roads. 3) To understand the design principles and techniques for the pavements in 20th Century. 4) To briefly introduce <u>emerging pavement materials and research areas for the futuristic pavements.</u>
Content	Introduction to pavements; factors affecting design of pavements; early pavement developments in Egypt, Mesopotamia, Crete, and Greece; essential properties for paving materials; Roman pavements: materials and construction techniques; French and British pavements construction techniques; development of heavy trafficked pavements using masonry methods; development of pavements with thin bituminous surfacing; development of asphalt pavements in 20 th century, development of concrete pavements in 20 th century; equipment and methods for evaluating pavement performance; emerging materials and techniques for pavement construction.
Contact hrs	30 hrs
Outcomes of Course	<p>After completing this course, the student will be able to:</p> <p>CO 1: Explain the significance of pavements, and factors affecting its design and performance.</p> <p>CO 2: Explain the design principles, materials and construction techniques of earlier pavements.</p> <p>CO 3: Explain the design principles, materials and construction techniques of pavements in 20th century.</p> <p>CO 4: Explain equipment and methods used in the evaluation of pavement performance.</p> <p>CO 5: Describe various types of emerging pavement materials and construction techniques for futuristic pavements.</p>

Name of Faculty Mentor	Prachi Singh
Novel Engaging Course Title	SPSS For Data Analysis (2000078)
Objectives of Course	<ol style="list-style-type: none"> 1. To introduce the basic practice of statistics by using SPSS Statistics, a statistical software program used for data management and data analysis and learn how to perform basic statistical analyses. 2. To introduce participants to the use of advanced SPSS for analysing project data for reporting purposes focusing on database management tasks, descriptive statistics, hypothesis testing, ANN & PCA and basic inferential statistics for comparisons and correlations.
Content	<p>Module 1: Introduction to SPSS and basic statistics</p> <ul style="list-style-type: none"> ● Getting started with SPSS GUIs. ● Data input and data cleaning in SPSS. ● Case summary in SPSS ● Reliability analysis of data ● Frequency analysis of data ● Descriptive analysis of data <p>Module 2: Hypothesis Testing in SPSS</p> <ul style="list-style-type: none"> ● Parametric hypothesis testing (One sample T-test, independent sample t-test, paired sample T-test and ANOVA Test) ● Non-parametric hypothesis testing (Chi-squared test, Kruskal-Wallis H Test, Mann-Whitney U Test and Friedman Test) ● Coefficient of correlation (Pearson correlation coefficient and Spearman's correlation coefficient) <p>Module 3: ANN and Dimension Reduction in SPSS</p> <ul style="list-style-type: none"> ● Multilayer perceptron neural network ● Radial basis function network ● Principal Component Analysis
Contact hrs	30 hrs
Outcomes of Course	<p>At the end of the course, participants should be able to:</p> <ol style="list-style-type: none"> 1. Read-in, enter, organise, and save data in suitable way. 2. Conduct frequency analysis, descriptive and basic inferential statistics. 3. Test the parametric and non-parametric hypothesis testing. 4. Apply the ANN and dimensional reduction techniques.

Name of Faculty Mentor	Shourabh Singh Raghuwanshi
Novel Engaging Course Title	Shutter Up-Flash Me Photography (2000080)
Objectives of Course	To Explore the principles of lighting and colour theory to a variety of photographic scenarios by measuring, evaluating, and adjusting light and colour to create quality images.
Content	Basics of Photography, Digital Photography, Photography lighting, Adobe Light room, Photoshop Retouching, Landscape photography, Photography composition, Image editing, Photoshop, Digital Camera Functionality, Portrait Photography
Contact hrs	30 hrs
Outcomes of Course	At the end of this course, the student will be able to: <ol style="list-style-type: none"> 1. Demonstrate the basic Technique of photography 2. Compare traditional film and digital cameras and photography 3. Analyze the various Equipment which can enhance photography 4. Create a quality photograph using basic rules and technology 5. Discuss the impact of photography in publications

Name of Faculty Mentor	Rakesh Dubey
Novel Engaging Course Title	Science and Technology Around Us (2000081)
Objectives of Course	<ul style="list-style-type: none"> a. Promote excellence in real life practices happening around us. b. Skill enhancement and personality development among team c. Providing students a forum for interaction with faculties, prominent personalities of the various field
Content	<ul style="list-style-type: none"> a) Introduction to the science and technology available around us. b) Selection of appropriate scientific problems c) Discussion of problems in practical manner d) Monthly Quiz on various aspect of Engineering and Technology. e) Interactive Questioning f) Workshop on conventional energy resources g) Scientific/technical discussion among students on given topics h) Extempore speech on random topics i) Industrial expert talk j) Technical/Scientific exhibition
Contact hrs	30 hrs
Outcomes of Course	<p>At the end of this course, the student will be able to:</p> <ul style="list-style-type: none"> a) Work as a team within specified time b) Explain the various domain problems in Practical manner c) Enhance the communication and technical skill by participating in various activities d) Implement the technical knowledge in daily life

Name of Faculty Mentor	Mir Shahnawaz Ahmad
Novel Engaging Course Title	Cloud Computing: Techniques & Tools (2000083)
Objectives of Course	<ul style="list-style-type: none"> ● To understand the basics of cloud computing techniques. ● To explore the applications of cloud computing. ● To evaluate different cloud computing techniques for deploying cloud infrastructure.
Content	Overview of Cloud Computing: Definition and essential characteristics, a brief history and evolution of cloud, architecture, cloud services and deployment models. Basics of virtualization and its importance in cloud computing, virtualization tools & techniques. Programming models for cloud computing. Amazon AWS, Eucalyptus, CloudSim. Security risks and threats cloud computing. Security architecture for cloud computing.
Contact hrs	30 hrs
Mode of Delivery	Online
Outcomes of Course	<p>After completing the course, the students will be able to:</p> <ul style="list-style-type: none"> ● Understand the fundamental principles of distributed computing. ● Apply the concept of virtualization and other related techniques for the development of Cloud Computing. ● Assess different cloud computing techniques & platforms.

Name of Faculty Mentor	Ranjeet Kumar Singh
Novel Engaging Course Title	Role of MATLAB in Computations (200084)
Objectives of Course	To introduce students the use of a high-level programming language, MATLAB. To provide programming approach in MATLAB for solving technical computing problem. To provide a programming approach to solve the problem in image processing field.
Content	<p>Introduction: What is MATLAB, Feature of MATLAB, Use of MATLAB</p> <p>Basic Syntax: Use of semicolon, adding comments, Operator, Variable, Naming, Creating Matrix.</p> <p>Data Type: Data Types available in MATLAB, Data type conversion.</p> <p>Operator: Arithmetic operator, Function for arithmetic operator, Relational operators, Logical operators, Bitwise operator.</p> <p>Decision Making and Loop type: if... end statement, if...else...end statement, Nested if statement, Switch statement, the while loop, the for loop, break and continue statement.</p> <p>Matrix: Element of Matrix, Deleting Row, Column in a Matrix, Matrix Operations, Addition, Subtraction, Division, Multiplication of a Matrix.</p> <p>Array & String: Special array in MATLAB, Array function, sorting arrays, accessing data in cell array, rectangular character array, combining strings into a cell array.</p> <p>Function: Anonymous Function, Nested Function, Private Function.</p> <p>Plotting & Graph: Adding Title, Labels, Grid line setting colours on Graph, Drawing Bar Charts.</p> <p>Application in Image Processing: Read and Display an Image, Improve Image Contrast, Write the Image to a Disk File, create a Binary Version of the Image, rotation, Cropping and scaling of an image.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>At the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> • Use MATLAB to perform interactive calculations. • To generate graph and chart these for use in reports analysis and presentations. • To write algorithms and code for solving problems in image processing.

Name of Faculty Mentor	Arun Kumar
Novel Engaging Course Title	Demystifying Online Social networks (2000085)
Objectives of Course	<ul style="list-style-type: none"> ● To understand the basics of online social network foundations. ● To explore the impact of online social networks. ● To build a system for real-time analysis of online social networks.
Content	<p>Types and overview online social networks: Brief history and evolution of online social networks, the analogy with real-world social networks, architecture, business model.</p> <p>Analysis of online social networks: Data collection and processing, use of API, visualization tools & techniques, Privacy and Security Issues</p> <p>Social Engineering & Digital Marketing: Sentiment analysis and sentiment building, identifying the target audience, social campaign implementation, and monitoring. Career opportunities.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>After completing the course, the students will be able to:</p> <ul style="list-style-type: none"> ● Understand the fundamental concepts of online social networking. ● Apply the concept of online social networking to analyze public sentiments. ● Solve real-world problems using sentiment analysis

Name of Faculty Mentor	Anshu Chaturvedi
Novel Engaging Course	Gender Sensitization (2000088)
Objectives	<ul style="list-style-type: none"> ● To develop students' sensibility with regard to issues of gender in contemporary India. ● To provide a critical perspective on the socialization of men and women. ● To introduce students to information about some key biological aspects of genders. ● To implement measures for ensuring safety of women and programmes for gender sensitization. ● To develop an understanding about gender inequalities and their adverse effects. ● To sensitise students about integrating gender sensitive practices in their private & professional life.
Content	<ol style="list-style-type: none"> 1. Aims and objectives of gender sensitization 2. Socializing 3. Preparing for Womanhood. 4. Growing up Male. 5. Sex v/s Gender and barriers 6. Bioethics, Morals and Conditioning 7. Sexual Education 8. Feminism and Patriarchy, Feminist ideology 9. Feminist Movements in brief 10. Communication and Relation 11. Stress and how do the opposite sex cope with the stress? 12. Constitutional Laws and Fundamental rights, Human Rights, Women related Law 13. Women in Politics 14. Man and Woman relationship 15. LGBTQ+
Contact hrs	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Create awareness about gender issues and gender inequalities prevalent in society. • Develop social consciousness • Analyze policy decisions to remove gender biases. • Sensitize Gender conscious workforce who aim at creating a congenial work environment. • Attain a finer grasp of how gender discrimination works in our society and how to counter it.

Name of Faculty Mentor	Abhishek Dixit
Novel Engaging Course Title	IT Tools (200089)
Objectives of Course	To learn different components of the Excel worksheet and PowerPoint. To understand the features of interactive online platforms.
Content	<p>Excel: Getting Started with Excel, Working with Formulas and Functions, Creating Charts and Graphics, Use Advanced Excel Features, Analyzing Data With Excel.</p> <p>PowerPoint: Creating Presentation, Setting Backgrounds, Editing Presentation, Formatting Presentation, Insert Slide Numbers, Header & Footer, Working with Multimedia, Sharing Presentation.</p> <p>Working with online platforms: Microsoft 365, Google Services, Google Sheet, Google Docs, Google Slides, Google form.</p> <p>Video and Audio Tools, Documents Scanning Tools, Format Conversion Tools.</p> <p>Interactive Platforms with their features: Goole Meet, Zoom, Microsoft Team etc.,</p>
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of this course, the students would be able to:</p> <ol style="list-style-type: none"> 1. choose various online platforms for preparing worksheet and presentation. 2. apply various formulas and functions in Excel worksheet. 3. analyze the data using Excel. 4. examine the working of various interactive platforms tools. 5. design Excel worksheet and PowerPoint presentation.

Name of Faculty Mentor	Saumil Maheshwari
Novel Engaging Course Title	Understanding Financial Markets (2000090)
Objectives of Course	<ol style="list-style-type: none"> 1. To build up the strong portfolio and understand the role of financial market in economy 2. To understand the most important financial markets, that people can invest in and break down their key drivers and attributes.
Content	General introduction and key concepts, Major financial Markets, other financial markets
Contact hrs	30 hrs
Outcomes of Course	<p>.Upon completion of the course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Describe the different components of a financial system and their role. 2. Explain the recent developments in the Indian financial system 3. Describe the instruments, participants and operation of the money market

Name of Faculty Mentor	Vikram Rajpoot
Novel Engaging Course Title	Intellectual Property : Rules, Drafting and Processing (2000091)
Objectives of Course	Main objective of this course is to help students to draft their own ideas and process their intellectual work.
Content	<p>Unit 1 Patent: Rules, Drafting and Processing.</p> <p>Unit 2 Copyright: Rules, Drafting and Processing.</p> <p>Unit 3 Design: Rules, Drafting and Processing.</p> <p>Unit 4 Trademarks: Rules, Drafting and Processing.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Student would able to</p> <ul style="list-style-type: none"> • Know about how to protect their innovation and artistic work. • Draft their invention according to laws of Intellectual Property Right. • Process the invention and their artistic work.

Name of Faculty Mentor	Namrata Agrawal
Novel Engaging Course Title	Modern techniques for business correspondence (200093)
Objectives of Course	<ul style="list-style-type: none"> ● To improve overall English writing skills. ● To learn various techniques for effective email writing. ● To understand how culture affects the business emails. ● To inculcate powerful business emails writing skills in students.
Content	Understand basic professional email structures in English. DOs and DON'Ts in Professional Email. Organization, Style & Editing Basics, Common Errors in Punctuation and Capitalization. Consent Form, Write a Practice Email. Writing Effective Subject Lines and Well-organized Email Text. Overview of Introduction & Announcement Emails, Key Language for Writing different Types of Emails. Analyze and identify the traits of request and apology emails. Learn specific language associated with making requests and apologies. Practice focused on key language.
Contact hrs	30 hrs
Outcomes of Course	<p>After completing the course, the students will be able to:</p> <ul style="list-style-type: none"> ● Understand the basic structure of professional emails. ● Learn various techniques for effective business correspondence. ● Apply and evaluate the rhetorical strategies and the formal elements of various communication genres.

Name of Faculty Mentor	Tej Singh
Novel Engaging Course Title	Integrating Engineering and Literacy (2000094)
Objectives of Course	Engaging students in engineering by having them work through Novel Engineering activities and anticipating student responses while planning lessons can focus attention back to the students, and builds in a check to see if the tasks allow for multiple design paths.
Content	Introduction to the theory, curricula and practices of teaching integrated engineering and literacy. Topics include disciplinary engineering practices, connecting literacy to engineering, analysis of example implementations, and literacy practices. Required implementation of sample curricular units in educational settings.
Contact hrs	30 hrs
Outcomes of Course	On completion of this course, the student will be able to: <ul style="list-style-type: none"> • Experience engineering themselves and reflect on their own understandings of engineering and the engineering design process. • Focus not only on engineering within Novel Engineering, but engineering as a discipline.

Name of Faculty Mentor	Bhagat Singh Raghuwanshi
Novel Engaging Course Title	Imbalance Learning (2000095)
Objectives of Course	<ul style="list-style-type: none"> • The course will give the student the basic ideas and intuition behind modern imbalance learning methods • To learn, various imbalance machine learning methods • To handle the imbalanced classification problems
Content	<p>Unit –I Introduction to Imbalance learning.</p> <p>Unit-II Extreme learning machine, Support Vector Machine, SMOTE methods, Training of feed forward networks by back propagations, Stochastic Gradient Descent.</p> <p>Unit-III Different tool used for imbalance learning</p> <p>Unit-IV Random vector functional link, Least square methods</p> <p>Unit-V Weighted Extreme learning machine, class-specific extreme learning machine</p>
Contact hrs	30 hrs
Outcomes of Course	<ul style="list-style-type: none"> • Apply imbalance classification algorithms for classify data. • Apply imbalance learning algorithms for finding relationships between data variables. • Examine various imbalance supervised learning and unsupervised learning techniques and their comparison • Build the concept of working of Algorithms for imbalance learning

Name of Faculty Mentor	Pawan Dubey
Novel Engaging Course Title	Python for Image processing applications using Open CV (2000096)
Objectives of Course	<ol style="list-style-type: none"> 1. To understand the Fundamentals Image processing. 2. To understand the python application in Image processing 3. To understand the researchimplementation aspects in Image processing
Content	<p>Fundamentals of Python: What is Programming, Importance and history of Programming,High Level Language, Assembly Language, and Machine Language, How Compiler compiles source code to machine code.Operators and Data type of Python.Lists.Sets and Tuples. Dictionaries.Conditional statements.</p> <p>Image Processing algorithms: Image Transforms. Image Enhancement. Spatial Domain: Basic relationship between pixels- Basic Gray level Transformations – Histogram Processing – Smoothing spatial filters- Sharpening spatial filters. Image Restoration, Feature Extraction, Image Reconstruction from Projections.</p> <p>Image processing through OpenCV: Essential software installation, OpenCV Implementation: Basic Gray level Transformations – Histogram Processing – Smoothing spatial filters- Sharpening spatial filters. Image Restoration, Feature Extraction.</p> <p>OpenCV IP Application instances: Image smoothing, finger print classification, Iris classification, Noise Filtering through open. Morphological operations</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Explain image processing fundamentals. 2. Describe python applications in image processing application. 3. Apply OpenCV and Python for real life application.

Name of Faculty Mentor	Divya Chaturvedi
Novel Engaging Course Title	MATLAB: Applications in Mathematical Biology (2000098)
Objectives of Course	<ul style="list-style-type: none"> • To learn basics of MATLAB as a programming tool. • To promote new teaching model that will help to develop programming skills and technique to solve mathematical problems. • To understand MATLAB graphic feature and its applications. • To use MATLAB as a simulation tool. • To learn the applications of MATLAB in Mathematical Biology
Content	<ul style="list-style-type: none"> • Introduction to MATLAB • Vectors and Matrices, Eigen value and Eigenvectors • MATLAB Graphics. • System of ordinary differential Equations • Applications: Logistic Growth Model, Prey-Predator Mathematical Model
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Solve system of differential equations using MATLAB. • Write program Scripts and Functions using the MATLAB Environment. • Generate plots and export this for use in reports and presentations. • Apply MATLAB in Mathematical Biology

Name of Faculty Mentor	Atul Kumar Ray
Novel Engaging Course Title	Basics and Applications of Mathematica (2000099)
Objectives of Course	<ol style="list-style-type: none"> 1. To introduce basics of Mathematica 2. To solve Algebraic equations easily with Mathematica 3. To do Integration and Differentiation of real life problems 4. To know the use of Mathematica in statistics and Data analysis 5. To know the application of Mathematica in Science and Engineering
Content	<p>Introduction of Mathematica: Basic of Mathematica, Calculations, Parentheses, Brackets, and Braces, Algebraic Manipulation, syntax for defining variable and functions, entering exponents, radicals, and fractions, Special Characters, Piecewise-defined Functions, Abs, Floor, and Mod, Lists, Creating and manipulating Lists, Union and Join, Loops, Creating Table, map and apply, 2 Dimensional and 3 Dimensional Graphics and Plots</p> <p>Algebra using Mathematica: Solving Algebraic Equations, finding root of a Polynomial and finding polynomial from Given Root, Methods for finding root, Generating Polynomials, Decomposing Polynomials into their constituent parts, Dividing Polynomials by Other Polynomials, Solving system of linear equations, methods</p> <p>Calculus using Mathematica: Computing Limits, working with Piecewise Functions, Using Power Series Representations, Differentiating Functions, Integration, Solving Minima and Maxima Problems, Solving Vector Calculus Problems, Generating Functions and Sequence, Solving Differential Equations, Solving Difference Equations, DSolve and NDSolve,</p> <p>Statistical and Data Analysis: Computing Common Statistical Metrics of Numerical and Symbolic Data, Generating Pseudorandom Numbers with a Given Distribution, Working with Probability Distributions, Demonstrating the Central Limit Theorem, Covariance and Correlation of Vectors and Matrices, Measuring the Shape of Data, Fitting Data Using a Linear and Nonlinear Model, Creating Interpolation Functions from Data, Testing for Statistically Significant, Difference Between Groups Using ANOVA, Hypothesis Testing with Categorical Data</p> <p>Few Applications in real life (Science and Engineering): Working with Chemical Data, Modeling Predator-Prey Dynamics, modeling a Vibrating String, Modeling Electrical Circuits. Image Processing: Extracting Image Information, Converting Images from RGB Color Space to HSV Color Space, Enhancing Images Using Histogram Equalization, Finite element method</p>
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Know the basic syntax of Mathematica 2. Solve Algebraic equations easily with Mathematica 3. Solve differential equations based on real life problems 4. Use concepts of Mathematica in statistics and Data analysis 5. Apply Mathematica in different discipline of Science and Engineering

Name of Faculty Mentor	Minakshi
Novel Engaging Course Title	Technical Report Writing for Engineers (2000100)
Objectives of Course	<p>To learn written communication skills in the wake of present day professional world</p> <p>To enhance the understanding of written communication with practice oriented approach</p> <p>To collect, analyse, report data and increase technical paper writing skills.</p> <p>To familiarize with grammar and usage. Also, this course will increase the presentation skills.</p> <p>To acquire higher order writing skills through project assignments</p>
Content	<p>Fundamentals and elements of Report writing. Types of reports such as memo, corrigendum. How to write a laboratory report?</p> <p>What is scientific writing? What is the origin of writing?</p> <p>What is a scientific article? How to prepare a title?</p> <p>How to list the authors and their affiliations?</p> <p>How to prepare a short summary? How to write an introduction, Materials and method, Results and discussion?</p> <p>How to write acknowledgements, references, tables, and figures. How to communicate with the editors.</p> <p>How to select the sources of data?</p> <p>How to do the Data analysis, illustrating data and mechanics of writing.</p> <p>How to prepare the presentation and key points to be considered during the oral presentation? How to write the Conference papers, and Book reviews?</p> <p>Key points regarding the poster presentation, Ethical issues, rights and permissions, and abbreviations. Flow of IPR. Issues related to plagiarism and ways to counter the same.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Upon completion of this course, students will:</p> <ol style="list-style-type: none"> 1. Demonstrate the characteristics of technical and business writing. 2. Demonstrate the stages of the writing process (prewrite/draft/revise/edit) and apply them to technical and workplace writing tasks. 3. Produce documents related to technology and writing in the workplace and will have improved their ability to write clearly, concisely, and accurately.

Name of Faculty Mentor	Nikhil Paliwal
Novel Engaging Course Title	Proficiency in Microsoft Excel (2000101)
Objectives of Course	<ul style="list-style-type: none"> • Build a solid understanding on the Basics of Microsoft Excel
Content	<ul style="list-style-type: none"> • Creating a Microsoft Excel Workbook • The Ribbon • The Backstage View (The File Menu) • The Quick Access Toolbar • Entering Data in Microsoft Excel Worksheets • Formatting Microsoft Excel Worksheets • Using Formulas in Microsoft Excel • Working with Rows and Columns • Editing Worksheets • Finalizing Microsoft Excel Worksheets, etc.
Contact hrs	30 hrs
Outcomes of Course	<p>As a result of taking the Proficiency in Microsoft Excel Course, Students Will Be Able to:</p> <ul style="list-style-type: none"> • Identify the different components of the Excel worksheet. • Move & Copy alpha and numeric data • Construct formulas to manipulate numeric data in an Excel Worksheet • Create a spreadsheet to tabulate and record numeric values • Change the appearance of an Excel spreadsheet • Set up the chart function of Excel to represent numeric data in multiple formats.. • Access and manipulate data using the database functions of Excel, and many more.

Name of Faculty Mentor	Manoj Kumar
Novel Engaging Course Title	Fundamentals of Electronics Devices (2000102)
Objectives of Course	<p>The main objective of this Module is to familiarize the participants with:</p> <ol style="list-style-type: none"> 1. the basic theory of power semiconductor devices and passive components 2. Practical application in power electronics and to familiarize the operation principle 3. Basic Understanding of Power Conversion (AC-DC, DC-DC, DC-AC) conversion circuits and their applications. 4. Also to provide the basis for further study of power electronics circuits and systems. 5. Power Quality Issues
Content	<ul style="list-style-type: none"> • Power Semiconductor Devices: Classification of Power electronic switches, Power diodes, Transistors, MOSFET, IGBT, Thyristor, TRIAC and GTO, Thyristor static and dynamic characteristic • Controlled Rectifiers • Importance of reactive power Power Quality Improvement, Under voltage/Over voltage Swag/Swell, Harf s and Frequency transients, Power factor correction, Frequency stabilization
Contact hrs	30 hrs
Outcomes of Course	<p>Course Outcomes:</p> <p>After completing this course the student will be able to:</p> <ul style="list-style-type: none"> • Name power electronics devices (i.e. Diode SCR, BJT, MOSFET and IGBT. etc) and explain their static/ dynamic characteristics. • Classify rectifiers and identify their applications. • Identify the problems/limitations of power electronics devices • Explain the importance of power quality improvement

Name of Faculty Mentor	Bhavna Rathore
Novel Engaging Course Title	Microsoft Visio: Scratch to Advance (2000103)
Objectives of Course	<ul style="list-style-type: none"> • To provide fundamental knowledge about Microsoft Visio • This course encourages students to make flowchart, diagram, electrical circuit, electronic circuit etc. in Microsoft Visio
Content	<ul style="list-style-type: none"> • Introduction • Create shapes • Resize, position and connect shapes • Block diagrams • Create flow charts and Workflow diagrams • Create organisational charts • Insert mathematical equations, special characters, and symbols • Draw electrical circuits in Visio • Draw electronic circuits in Visio • Import/export images in/from Visio • 2-D map design in Visio • Building plan in Visio
Contact hrs	30 hrs
Outcomes of Course	<p>After the completion of the course, the student will be able to –</p> <p>CO 1. Create shapes, equations, symbols in Visio</p> <p>CO 2. Design flowchart and organization chart in Visio</p> <p>CO 3. Develop 2D map in Visio</p> <p>CO 4. Prepare building plan in Visio</p> <p>CO 5. Draw electrical and electronic circuits in Visio</p>

Name of Faculty Mentor	Rahul Sagwal
Novel Engaging Course Title	Renewable Energy Technology: Domestic load requirements (2000106)
Objectives of Course	This course aims to make the domestic electricity consumer aware about the load pattern, types of load, tariff structure, various Renewable Energy Technologies, Govt. policies regarding RESs etc. so that he/she can become capable of calculating his/her energy needs and then to select best possible Renewable Energy based solution to locally fulfil the energy needs.
Content	<p>This course would cover the following topics:</p> <p>Load: Types of load, load curve, star-delta, 1-phase & 3-phase loads</p> <p>Load forecasting: Load forecasting tools, seasonal dependence of electric load</p> <p>Tariff: Tariff structures, subsidies</p> <p>Renewable energy technologies: Solar, Wind, Small Hydro power generation technologies, present energy scenario in India</p> <p>Policies: Various supportive policies from Government towards Clean Energy solutions, Net-Metering, RPOs, RECs, Carbon-footprint, Role towards society</p> <p>Case study: Participant's own home</p> <p>Software basics: Excel/MATLAB for calculations</p> <p>Designing: Proposal of suitable Renewable Energy solutions for energy needs of participant's house, factors affecting the selection process, selection of best energy solution for this site, designing of the physical aspects for the proposed solution</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Course Outcomes for this course are listed below. After completion of this course participant would be able to:</p> <p>CO1: Identify different types of electric loads</p> <p>CO2: Familiarize with tariff structure</p> <p>CO3: Compare different renewable energy technologies</p> <p>CO4: Design a solution for energy needs of his/her house</p>

Name of Faculty Mentor	Saurabh Kumar Rajput
Novel Engaging Course Title	Electrical Wiring, hazards & safety (2000107)
Objectives of Course	To impart practical knowledge on electrical wiring, hazards and safety precautions related to domestic and industrial usages.
Content	<ol style="list-style-type: none"> 1. Domestic electrical wiring, switchboard including inverter connections (06 hours). 2. Three phase industrial wiring connections, cable and load (06 hours). 3. Basic electrical measuring components/ tools and their use (06 hours). 4. Understanding electricity bill/ tariff and analysis (06 hours). 5. Electrical hazards and safety precautions (06 hours).
Contact hrs	30 hrs
Outcomes of Course	<p>Upon completion of the course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Imbibe the basic knowledge about domestic and industrial wiring connections. 2. Inculcate the understanding about switches, meters, cables and electrical loads. 3. Use of different electrical measuring equipment & tools. 4. Apply the electricity concepts for analysing the electricity bill components. 5. Recognize the reasons behind electrical hazards and apply the precautions for safety.

Name of Faculty Mentor	Sandeep Sharma
Novel Engaging Course Title	Basics of MATLAB Programming (2000108)
Objectives of Course	<p>The main objectives are:</p> <ul style="list-style-type: none"> • Understanding the MATLAB environment • Being able to do simple calculations using MATLAB • Being able to carry out simple numerical computations and analyses using MATLAB
Content	<p>Unit 1. Introduction to MATLAB</p> <ul style="list-style-type: none"> • The MATLAB Environment • MATLAB Basics – Variables, Numbers, Operators, Expressions, Input and output. <p>Unit 2. Vector, Arrays and Matrices</p> <ul style="list-style-type: none"> • Vectors, Arrays – Matrices • Vectors, Arrays – Matrices : Exercise <p>Unit 3. Plotting with MATLAB</p> <ul style="list-style-type: none"> •Plotting with MATLAB •2D and 3D Plots •Exercise <p>Unit 4. Looping in MATLAB</p> <ul style="list-style-type: none"> •if-end structure •for-end structure •while-end structure • Exercise <p>Unit 5. Application of MATLAB</p> <ul style="list-style-type: none"> •communication engineering problems •control engineering problems
Contact hrs	30 hrs
Outcomes of Course	<p>Upon successful completion of this course, the student should be able to:</p> <ul style="list-style-type: none"> • Explain the main features of the MATLAB development environment • Use the MATLAB GUI effectively •Apply simple programming logic • Write simple programs in MATLAB to solve scientific and mathematical problems

Name of Faculty Mentor	Hemant Choubey
Novel Engaging Course Title	Basic Programming of Python using Google Colab (2000109)
Objectives of Course	Development of Programming skill
Content	Unit1-Basic Installation steps for software. Unit2-Variable ,data type and Mathematical Operation. Unit3-Use of Function in Python. Unit4-Ploting. Unit5-Data Visualization .
Contact hrs	30 hrs
Outcomes of Course	Upon successfully completing this course, students will be able to: <ul style="list-style-type: none"> • Design a program to solve the problem • Create executable code • Read most Python code • Visualize data effectively

Name of Faculty Mentor	Vikas Mahor
Novel Engaging Course Title	LTSpice Tutorial for Circuit Simulation (2000110)
Objectives of Course	To make the students learn about the usage of CAD tools for analyzing microelectronic circuits.
Content	<ul style="list-style-type: none"> • Installation of LTspice software tool. Historical Context , The SPICE Algorithm, Device Models , Netlists , LTspice, Device Parameter Models • Creating a Circuit in the Schematic Editor The Schematic Editor, The Toolbar, Manipulating the Canvas, Placing Components, Placing a Resistor, an Inductor or a Capacitor, Searching for a Component, Voltage Reference, Moving Components Around, Connecting Components, Assigning Parameter Values, Naming Components, Labelling Nets, Printing your Circuit • Running Analyses, DC Operating Point Analyses, DC Sweep Analyses, Transient Analyses, AC Analyses, Printing your Plots • Using Simulator Directives
Contact hrs	30 hrs
Outcomes of Course	<p>Upon completion of the course students should be able to:</p> <ol style="list-style-type: none"> 1. Use basic electrical DC concepts and theorems to analyze circuits. 2. Build and simulate electrical DC circuits and perform measurements with electronic test equipment. 3. Write technical reports using collected data.

Name of Faculty Mentor	Dinesh Rano
Novel Engaging Course Title	Research Paper Writing (2000111)
Objectives of Course	This course focuses on improving the skills of scientific/technical reading, writing, and presentation. This course also carries out literature review/background study for research/projects. In particular, students practice scientific/technical writing via short individual or group assignments.
Content	Research paper/Technical report reading; Extracting the objective and contribution; Principles of effective scientific and technical writing, crafting better sentences, Organization of the report/paper, Research paper/technical report reading and writing short critique, Making an effective presentation with the help of slides, Thorough discussion on digging the literature for writing background study along with problem statement, motivation and building the Introduction section of a report or research paper. Student Presentations on Research paper submitted and Discussion, Writing a short technical research paper; Writing in Latex. They are provided with reading exercises on research paper or recent advances on technology along with writing short critiques on research papers/reports read. Furthermore, students will also practice on presentation skills
Contact hrs	30 hrs
Outcomes of Course	At the end of the course, the student will be able to: CO1. Search for suitable literature CO2. Critically read research papers CO3. Write good technical reports CO4. Make good technical presentation CO5. Follow copyright/plagiarism rules and practices in technical literature

Name of Faculty Mentor	Rahul Dubey
Novel Engaging Course Title	Understanding Logic Gates (2000114)
Objectives of Course	The objective of this course is to help student learn basic concepts of Logic gates.
Content	Boolean Algebra, Number system, OR gate, AND gate, Not gate, NAND gate, NOR gate, Digital codes- BCD Codes, Excess-3 Codes, Binary codes
Contact hrs	30 hrs
Outcomes of Course	Student will be able to: <ol style="list-style-type: none">1. Explain basic concept of number system2. Describe the operation and application of logic gates

Name of Faculty Mentor	Deepak Batham
Novel Engaging Course Title	MATLAB Simulink (2000115)
Objectives of Course	To gain knowledge and skills related to MATLAB Simulink.
Content	<ul style="list-style-type: none"> • Introduction to MATLAB Simulink. • Constants, Variables and Expressions, Vectors and Matrices, Polynomials, Input-Output Statements. • MATLAB Graphics, Control Structures, Writing Program and Functions. • Simulink applications in Analog and Digital Electronics, Control Engineering and Neural Networks.
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of the course, students are able to-</p> <ol style="list-style-type: none"> 1. Develop MATLAB code/graphics for engineering and scientific problems. 2. Design Analog and Digital Electronics Circuits using Simulink. 3. Analyze Control System using MATLAB Simulink. 4. Simulate Neural Networks using MATLAB Simulink.

Name of Faculty Mentor	Subash Chand Pal
Novel Engaging Course Title	CFD Foundation Course using ANSYS FLUENT (2000117)
Objectives of Course	<ol style="list-style-type: none"> 1. To understand introductory aspects of Computational Fluid Dynamics (CFD) 2. To develop various fluid flow governing equations from the conservation laws of motion and Fluid mechanics. 3. To develop comprehensive treatment of numerical methods in fluid flow and heat transfer problems in engineering applications. 4. To provide technical knowledge and hands on practice on simulation tools.
Content	<ol style="list-style-type: none"> 1. Review of fundamental concepts: viscous flow theory, Introduction to laminar and turbulent flow, Navier-Stokes equations. 2. Introduction to Computational Fluid Dynamics: Experimental, theoretical and numerical methods of predictions; physical and mathematical classifications partial differential equations; computational economy; numerical stability; validation of numerical results. 3. Introduction to graphical user interface of ANSYS Fluent: ANSYS Workbench overview, Design Modeler, SpaceClaim, Planes and Sketches and Modeling, Geometry Simplification and Repair, ANSYS Meshing, Mesh Quality. 4. Hands on practice on ANSYS Fluent: Pre-analysis, Geometry creation, Meshing, Model setup, boundary conditions, Numerical solutions, Numerical results, Verification and Validation. 5. Problem specific Exercises and Live Case Studies: CFD analysis of flow through simple and branched pipes, steady and unsteady problems. Analysis of blood vessels.
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of course students will be able to:</p> <p>CO1. Explain basic mathematical models for flow phenomena such as fluid flow and heat flow.</p> <p>CO2. Relate the theoretical concept with numerical simulation results.</p> <p>CO3. Solve computational problems related to fluid flows and heat transfer.</p> <p>CO4. Evaluate the grid sensitivity and analyze the accuracy of a numerical solution.</p> <p>CO5. Validate and verify the numerical results.</p>

Name of Faculty Mentor	Ravi Kant Ranjan
Novel Engaging Course Title	Solar Applications (2000118)
Objectives of Course	<ol style="list-style-type: none"> 1. To understand the basic concepts of solar energy. 2. To understand the basic principle and function of solar thermal system. 3. To understand the basic principle of solar PV systems and their application.
Content	<p>Unit1: Solar Radiation 10 Hours Sun as a source of energy, Solar radiation, basic concepts, various Sun-Earth angles, Atmospheric absorption of solar radiation, Solarradiation measuring instruments.</p> <p>Unit 2: Solar Thermal System 10 Hours Principle of conversion of solar radiation into heat, Collectors used for solar thermal conversion: Flat plate collectors and Concentrating collectors, Overview of the different components in a CSP system and their functions, Solar cookers, Solar dryers, Solar Distillation, Solar greenhouses.</p> <p>Unit 3: Solar PV System 10 Hours The function of solar cell from semi-conductor physics, Photovoltaic Effect, Solar Cell and its function, Solar Cell Parameters, Efficiency of Solar Cell, Solar PV Module, Connection of PV Module in Series and Parallel, Types of Solar PV System, Photovoltaic materials.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Student will be able to:</p> <ol style="list-style-type: none"> 1. Explain basic terms used in Solar system. 2. Measure and evaluate different solar energy technologies through knowledge of the function of the devices. 3. Calculate the required size of solar PV system and solar collector for a given power need.

Name of Faculty Mentor	Nitin Upadhyay
Novel Engaging Course Title	Computational Methods for Engineers using MATLAB (2000119)
Objectives of Course	<ol style="list-style-type: none"> 1. To Impart the Knowledge to the students with MATLAB software 2. To provide a working introduction to the MATLAB technical computing environment.
Content	<ol style="list-style-type: none"> 1. Introduction, Applications, Features, General overview of the MATLAB software 2. Basic operations, MATLAB as calculator, basic commands, Creating arrays, Mathematical Operation with Array 3. Creating function and Scripts, Basic Plotting, Creating Simple Plot 4. Solving linear equations, Matrix inverse, Matrix function 5. Results interpretation
Contact hrs	30 hrs
Outcomes of Course	<p>Course Outcomes: After successful completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Select the suitable tool to solve the engineering problems in MATLAB 2. Study how to break a complex problem up into smaller, simpler task 3. Compare the various tool available in MATLAB. 4. Analyze the results and interpretation of mathematical model

Name of Faculty Mentor	Surendra Kumar Chourasiya
Novel Engaging Course Title	Role of Non-Destructive Testing (NDT) in modern inspection technology (2000120)
Objectives of Course	To aware students about the modern technology of inspection in the field of materials science.
Content	<ol style="list-style-type: none"> 1. Basic introduction 2. Visual inspections techniques 3. Liquid penetrant techniques 4. Magnetic particle inspection techniques
Contact hrs	30 hrs
Outcomes of Course	<p>Students will be able to</p> <ul style="list-style-type: none"> • Apply the modern technology in the field of inspection of defect and flaws present in the materials/components without any destructive tests.

Name of Faculty Mentor	Harbhajan Ahirwar
Novel Engaging Course Title	Creative thinking and problem solving (2000121)
Objectives of Course	To develop the rational thinking and right approach to solve the problems
Content	Creative thinking, rational thinking, Right approach to solve the problem, Six hats thinking techniques, difference between creative thinking and conventional thinking, demerits of the conventional thinking, merits of the creative thinking, lesson plan for creative thinking and problem solving, critical problem solving.
Contact hrs	30 hrs
Outcomes of Course	At the end of the course, the student will be able to: <ul style="list-style-type: none"> • Engage the imagination to explore new possibilities • Distinguish relevant from non-relevant data, fact from opinion • Evaluate information and its sources critically

Name of Faculty Mentor	Dinesh Kumar Rathore
Novel Engaging Course Title	Material Characterization Techniques for Engineering Applications (2000122)
Objectives of Course	<p>The objectives of this course are to:</p> <ol style="list-style-type: none"> 1. Introduce the students to various engineering materials (i.e. metals, polymers, ceramics, composites) used in different applications 2. Develop the understanding on different performance requirements in specific engineering application 3. Apply various characterization techniques and select a material for intended application
Content	<p>Module-1: Physical Characterization Module-2: Mechanical Characterization Module-3: Thermal Characterization Module-4: Chemical Characterization Module-4: Topographic, Morphological, Phase, Interphase and Fracture Characterization Module-5: Characterization of Smart Materials</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Course Outcomes: After successful completion of this course students will be able to:</p> <p>CO1. Select suitable material characterization techniques required for specific application CO2. Study the effect of different material related parameters on the material's performance CO3. Compare the properties and performance of different engineering materials. CO4. Determine the effect of different phases, impurities on the behaviour of materials. CO5. Analyse crystal structure and composition of different materials.</p>

Name of Faculty Mentor	Neeraj Mishra
Novel Engaging Course Title	System Dynamics using Bond Graph Approach (2000123)
Objectives of Course	Develop a skill of modeling and simulation of multiphysical systems. Understanding the concept of physical systems in multi-energy domains and modeling their dynamics through the unified approach of Bond graph. Application of MATLAB for simulation
Content	<p>Unit-I Introduction to Physical System Dynamics Modeling of Physical System Dynamics: A Unified Approach: Physical systems, Introduction to Bond graphs, Ports, Bonds and Power; Elements of Bond graphs, 1-port elements – resistor R, Stiffness C, and Inertia I, Source of Effort Se and Flow Sf; 2-port elements – Transformer TF and Gyrator GY, with modulation, Junction elements 1 and 0; Causality: Causality for basic 1-port and multi-ports. Derivation of System equations from Bond graphs in firstorder state space form.</p> <p>UNIT-II Bond graph modeling of multi-energy systems: Mechanical Systems, Translation and rotation (about a fixed axis), Electrical Systems, Electromechanical Systems, Fluid systems, Transducer models – cylinder, rack and pinion, electromechanical transducers - motors, pumps – positive displacement and centrifugal pump, gear trains, etc.</p> <p>UNIT-III Analysis of linear systems: Application of MATLAB for Free and forced response for first and second order systems, Undamped and damped oscillator, Derivation of Signal flow graphs from Bond graphs, Derivation of Transferfunctions, Bode plots</p> <p>Simulation and case studies: Computer simulation of Dynamic Systems using Bond graphs</p>
Contact hrs	30 hrs
Outcomes of Course	<p>At the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> • Develop the understanding of the concept of physical systems in multi-energy domains and modeling their dynamics through the unified approach of Bond graph • Explain the concept of causality and its implications for deriving system equations from bond graph models • Simulate models of multi-energy physical systems

Name of Faculty Mentor	Trilok Pratap Singh
Novel Engaging Course Title	Basics of Campus Recruitment Training (2000124)
Objectives of Course	<ol style="list-style-type: none"> 1. To train students for all the stages of Campus Recruitments done at the institute level. The course has different modules for written test or aptitude test, group discussions and personal interviews. 2. To train the students to meet the expectations of the industry through our Campus Recruitment Training (CRT) program . 3. This course is updated on a regular basis to keep pace with the changes in the recruitment procedures adopted by various companies at campuses.
Content	Identified, Design & implemented-In house training (technical, Aptitude, communication skills), Interview foresight Session for students, Mock Interview, Training Orientation program, Students interaction program, Company Specific training Interview Techniques and Resume Building-Learning from Any company, Career Guidance & Importance of Training- Global Career Point, Aptitude in-house training class, Communication skills in-house training class, Outsourced training class through the support of different Institution. .
Contact hrs	30 hrs
Outcomes of Course	<p>Upon the completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Familiarize with the industry requirement. 2. Appear in the campus recruitment process more confidently.

Name of Faculty Mentor	Namrata Gupta
Novel Engaging Course Title	Corporate Governance (2000125)
Objectives of Course	To Providing Idea about corporate Governance and its implications on society and legal system.
Content	<ul style="list-style-type: none"> • Various models and mechanisms of corporate governance • Shareholder/stakeholder rights and responsibilities • Issues pertaining to the board of directors and management • An the audit committees • Analyze the corporate scandals along with corporate best practices • Legislations on corporate governance and responsibility
Contact hrs	30 hrs
Outcomes of Course	<p>At the end of the course, the student will be able to:</p> <p>CO1 : Adopt the appropriate mechanism for effective governance</p> <p>CO2 : Value the shareholder and stakeholder rights and responsibilities</p> <p>CO3 : Adhere to sound principles of direction and management</p> <p>CO4 : Analyze the significance of audit committee, its composition and responsibilities</p> <p>CO5 : Implement best practices on corporate management</p>

Name of Faculty Mentor	Monica Chauhan Bhadoriya
Novel Engaging Course Title	Professional Networking & CSR (2000126)
Objectives of Course	<ol style="list-style-type: none"> 1. To introduce new concepts and methods being used while providing a platform for students to interact with business people and learn from their experience. 2. To create awareness of the latest trends or technology in the industry. 3. To understand the role of CSR practices for achieving competitive advantage for firms. 4. To understand the importance of Corporate Social Responsibility and allied practices
Content	<p>The Meaning and Importance of Corporate Social Responsibility The Role of Stakeholders in CSR The Strategic Importance of CSR Implementation Importance of Professional Networking Connection and Interaction with Professionals Case studies, etc.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>On completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Network with experienced business professionals 2. Analyze the role of networking with other people and connecting with society 3. Apply various practices of CSR 4. Analyze the complex issues confronting organizational leaders as they develop their CSR programs. 5. Evaluate the level of commitment to CSR of various organizations and explain how it can be a source of competitive advantage 6. Build your knowledge by taking advantage of the viewpoints and prior experience of others.

Name of Faculty Mentor	Gautam Bhadoriya
Course Title	Craft practices in India (2000127)
Objectives of Course	The objective of this Novel engaging course is to impart knowledge of various Indian craft and its functioning. It's current scenario as well as factors influencing them.
Content	<p>1. Historical Background of Indian craft: Introduction to the basic concept in the evolution of crafts. Journey of various crafts over several decades and centuries</p> <p>2. Zone wise Introduction of craft: North, South, East, West, Central & North-east</p> <p>3. Types of craft: Metal craft, Wood craft, Leather craft, Paper craft, Textile craft, Stone craft, Pottery / Clay work, Terracotta work, Gems and stone, Grass craft, Bamboo craft, etc.</p> <p>4. Current Scenario of Craft: Current situation of Craft in Domestic and International Market.</p> <p>5. Factors influencing Craft: Social, Economic, Technological, Psychological etc.</p>
Contact hrs	30 hrs (Fixed)
Outcomes of Course	<p>At the end of the course the students will develop ability to:</p> <ol style="list-style-type: none"> 1. Develop understanding of various Indian crafts. 2. Analyze the impact of various factors such as Social, Economic, Technological, Psychological on crafts market.

Name of Faculty Mentor	Ashish Agrawal
Course Title	Design of Heat Exchangers (2000128)
Objectives of Course	The objective of this course is to familiarise students with classification, construction, application and design and analysis of various types of heat exchangers
Content	<ol style="list-style-type: none"> 1. Classification, construction and applications of heat exchangers. 2. Heat exchanger analysis using traditional methods. 3. Concise design methodology for typical heat exchangers. 4. Thermal and hydraulic aspects of tubular, compact and plate fin heat exchangers
Contact hrs	30 hrs (Fixed)
Outcomes of Course	<p>After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Create a basic expertise in heat exchangers 2. Solve the problems related to pressure drop and heat transfer in heat exchangers. 3. Design of tubular heat exchanger, compact heat exchanger and plate fin heat exchanger.

Name of Faculty Mentor	Himmat Singh
Novel Engaging Course Title	Smart Grid (2000129)
Objectives of Course	The Objective of this Course is to impart knowledge about Smart Grid technologies, different smart meters and advanced metering infrastructure.
Content	<ol style="list-style-type: none"> 1. Evolution of Electric Grid, Concept, Definitions and Need for Smart Grid 2. Service provider, operations, market, 3. Generation, transmission, 4. Distribution and customer. 5. National and International Initiatives in Smart Grid.
Contact hrs	30 hrs
Outcomes of Course	<p>On completion of this course, the students will be able to</p> <p>CO1: Recognize issues, opportunities & challenges in Smart grid</p> <p>CO2: Acquire knowledge about smart meters and advanced metering infrastructure.</p> <p>CO3: Know Power distribution sector framework in India and its comparison globally.</p>

Name of Faculty Mentor	Jaimala Jha
Novel Engaging Course	Study of Historical Monuments of Gwalior (2000130)
Objectives	<ul style="list-style-type: none"> • To promote scientific approach toward the study of Historical Monuments of Gwalior • To design brochure based on observation skills and the history of monuments.
Content	<ol style="list-style-type: none"> 1. Introduction about Historical monuments. 2. Observe a monument and construct the history of the monument. 3. Analyze need for preserving a historical monument. 4. Demonstrate their appreciation of the architecture through a sketch/Drawing. 5. Create a brochure and database of the monuments, using their knowledge.
Contact hrs	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Develop monuments database & Brouchre using appropriate software.

Name of Faculty	J.K. Mutele
Course Name/Code	An Introduction to Queueing Systems and its Applications (2000131)
Objectives	To impart knowledge of queueing system and its Applications in solutions of real world problems.
Content	<ul style="list-style-type: none"> • Introduction • Basic Queueing Theory • Analysis of some Queue models • Advanced Queueing Theory • Applications of queueing system
Contact hrs. per semester	30
Outcomes	<p>After completion of this course participants will be able to:</p> <ul style="list-style-type: none"> • Explain the basic concept of Queueing Theory. • Describe the various queue models. • Illustrate the applications of Queue models in real world problems as to reduce waiting time etc.

Name of Faculty Mentor	Khushboo Agarwal
Novel Engaging Course Title	Image processing using MATLAB (2000132)
Objectives of Course	To introduce the concepts of image processing and basic analytical methods to be used in image processing using MATLAB.
Content	The module will highlight basic as well as advance concepts in the field of Image Processing. The programme will cover the methods of image representation and transformation using MATLAB, and will help students to process histograms, understand image segmentation, reduce noise in images and image compression techniques.
Contact hrs	30 hrs
Outcomes of Course	After completion of the course, students will be able to: <ul style="list-style-type: none"> • Implement basic image processing algorithms in MATLAB. • Develop the skill necessary to further explore advance topics of digital image processing

Name of Faculty Mentor	Kuldeep Swarnkar
Course Title	Digital Circuit Design (2000133)
Objectives of Course	To provides in-depth knowledge of switching theory and the logic design techniques of digital circuits, which is the basis for design of any digital circuit.
Content	<ol style="list-style-type: none"> 1. Familiarization of 7400, 7402, 7404, 7408, 7432 & 7486. 2. Verification of truth tables of AND, OR, NOT, NOR, NAND, XOR, XNOR gates. 3. Implementation of various logic gates using NAND & NOR gates (Truth table verification). 4. Verification of De'Morgans theorem. 5. Implementation of Adder using minimum number of gates. 6. Implementation Sub tractor using minimum number of gates.
Contact hrs	30 hrs
Outcomes of Course	<p>After the completion of this course, the student will be able to :</p> <ol style="list-style-type: none"> 1. Design various logic gates starting from simple ordinary gates to complex digital circuits logic devices & array 2. Use the concepts of Boolean algebra for the analysis & design of various combinational & sequential logic circuits.

Name of Faculty Mentor	Madhav Singh
Course Title	Practical Electronics for Inventors (2000134)
Objectives of Course	<ol style="list-style-type: none"> 1. To encourage students to look beyond their textual knowledge and establish a relationship between theory and application of the learned concepts. 2. To provide a platform for the students to give a shape to their innovative ideas
Content	<p>Electronic Components: Familiarization/Identification of electronic components with specification, Functionality, type, size, symbol, cost etc. Active, Passive, Electrical, Electronic, Electro-mechanical, Wires, Cables, Connectors, Fuses, Switches, Relays, Displays, Heat sink etc.</p> <p>Cellular and Mobile Communication: Cellular Communications, Transmitting Receiving Antenna, Digital Cellular Phone Block Diagram, Types of Mobile Phones, Cellular Systems. Communication Devices: Wireless Technology: Cellular (3G/4G/5G Zigbee) , Bluetooth, Wi-Fi, Radio Frequency Identification (RFID).</p> <p>Domestic Appliances: Microwave Oven: Microwaves, Transit Time, Magnetrons, Wave Guides, Microwave Oven Block Diagram. Air conditioning system: components of air conditioning system,</p> <p>Sensors: Proximity Sensors, Temperature Sensors, Humidity Sensors, Pressure Sensors Accelerometers , Gyroscope, Gas Sensors</p> <p>Boards: Arduino- UNO, Arduino UNO (R3) , Arduino Nano, Arduino Micro , Arduino Due LilyPad Arduino , Arduino Bluetooth.</p> <p>Training on Software Tools: LT Spice, Tinkercad, Circuit Wizard ,Virtual Labs etc.</p> <p>Product/ Project Designing: Health Monitoring System, Night Patrol Robot, Face Recognition Bot Air Pollution Monitoring System Home Automation System Smart Parking System Smart Agriculture System Weather Reporting System.</p>
Contact hrs	30 hrs (Fixed)
Outcomes of Course	<p>On the completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate proficiency by use of software and hardware required in real-Life applications 2. Establish a relationship between theory and application of the concept of Electronics

Name of Faculty Mentor	Rakesh Narvey
Novel Engaging Course Title	Research Paper Preparation and Publication –Basics (2000135)
Objectives of Course	The objective of this course to introduce the principles, techniques and tools of academic and research report writing.
Content	Part a) Introduce the idea of core subjects studies, creativity and innovation, basic case studies. Part b) Advantages of publication in the career. Part c) Explaining the existing topic, available research content. Part d) Approach towards the results using software or data based. Part e) Plagiarism checking, its importance and how to resubmit paper if correction is required
Contact hrs	30 hrs
Outcomes of Course	After completion of the course, students will be able to: <ol style="list-style-type: none"> 1. Write reports on various academic activities including research effectively and efficiently 2. Learn the basic structure of a scientific article to be published in a peer reviewed journal.

Name of Faculty Mentor	R. P. Narwaria
Course Title	Basics of Control Systems for Engineers (2000136)
Objectives of Course	To understand concepts of the mathematical modeling, feedback control and stability analysis in Time and Frequency domains.
Content	Basic control system terminology, Open loop and Closed loop system, Feedback control, Block diagram algebra and Signal flow graphs, Effects of negative feedback, Test input signals, First order systems, Second order systems, Steady state error, Constant and error coefficients for type 0, 1, and 2 systems. Concept of stability of linear systems, Relation between the closed loop poles and stability, Relative stability, Absolute stability, Routh Hurwitz criteria and its applications
Contact hrs	30 hrs
Outcomes of Course	After the successful completion of the course the students will be able to: Analyze the response and stability of the closed and open loop systems.

Name of Faculty Mentor	Sanjiv Sharma
Novel Engaging Course Title	Computational Thinking for Problem Solving (2000137)
Objectives of Course	This course deals with the techniques needed to practice computational thinking, the art of using computers to solve problems and the ways the computers can be used to solve problems.
Content	<ul style="list-style-type: none"> • Concept of Problem Solving, Problem definition, Generate the alternative solution, implement & evaluate the solution, Selection of appropriate solution • Pillars of Computational Thinking: Decomposition, Pattern recognition, Data representation and Abstraction, and algorithms. • Express and analyzing the Algorithms, Flowchart, Pseudo code • Apply computational thinking using computer programming language
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of this course, the student will be able to:</p> <ul style="list-style-type: none"> • Select appropriate concepts and methods from a variety of disciplines to solve problems effectively and creatively. • Utilize a combination of approaches to analyze the problem to make accurate and timely decisions to solve problems • evaluate the implementation of solutions to problems • Develop the capability for designing an application for solving real world problems.

Name of Faculty Mentor	Utkarsh Srivastava
Course Title	Introduction to Auto CAD for Engineers (2000138)
Objectives of Course	The objective of this course is to make familiarize the students about the basic commands and tools necessary for professional 2D drawing.
Content	Introduction to Drawing commands such as Line command, Poly line command, Rectangle command etc.Introduction to Modify commands such as Move, Rotate, Scale, copy, Mirror, erase, trim, extend etc.Introduction to Interactive Input method such as grid, snap, ortho mode etc.Introduction to Annotate Dimension Style Manager such as Linear, Aligned, Radius Angular, Arc length etc.Introduction to Text command Layers blocks such as Single line text, Multiline text, Layer properties, Insert blocks etc.Introduction to 2D Fundamentals such as Drawing units, Sheet settings etc.Introduction to Create and Save Auto CAD such as Save files, Export pdf plot etc.
Contact hrs	30 hrs (Fixed)
Outcomes of Course	After the successful completion of this module, the students will be able to: <ol style="list-style-type: none"> 1. Acquire the knowledge about 2D Modelling 2. Compare the Mechanical behaviour of different materials. 3. Select appropriate tools required for specific operation on Conventional Machine.

Name of Faculty Mentor	Vikas Sejwar
Course Title	Smart Home Technologies (2000139)
Objectives of Course	The objective of this course to make familiar the students with the latest technologies to reduce energy consumption and to create a comfortable family environment
Content	Internet, WiFi, Infrared, Sensors, Smart Lighting Solutions, Smart Entertainment Devices for the Home, Smart Home Appliances, Smart Home Utilities, Smart Blinds Solutions, Smart Home Surveillance Cameras, Smart Door Locks, Smart Garage Door Openers and Gadgets, Smart Home Sensors, Smart Voice Recognition and Voice Activated Products, Smart Home Window Solutions, Eco-Friendly Smart Home Products, Smart Remote Controls, Smart Home Apps,
Contact hrs	30 hrs
Outcomes of Course	Student will able to: <ol style="list-style-type: none"> 1. Know the basic framework of a home automation system 2. Familiarize with the technology of systems of control of lightning, security and their integration in smart houses

Name of Faculty Mentor	Yashwant Sawle
Course Title	OrCAD PSpice (2000140)
Objectives of Course	The objective of this course is to familiarize the student's about the power of PSPICE: Personal Simulation Program with Integrated Circuit Emphasis. It is a Cadence Electronic circuit analysis tool that helps to do the simulation of a circuit of analog and mixed-signal and eventually find out the key voltages and currents of that circuit.
Content	PSpice® model library includes parameterized models such as BJTs, JFETs, MOSFETs, IGBTs, SCRs, discretes, operational amplifiers, optocouplers, regulators, and PWM controllers from various IC vendors.
Contact hrs	30 hrs
Outcomes of Course	On completion of this course, the student will be able to: <ul style="list-style-type: none"> • Verify circuit behaviour and optimize designs of electrical/electronic circuit of complex systems much like seen in industry • Create virtual prototypes of designs and maximize circuit performance from circuit exploration to design development and verification.

Name of Faculty	Vijay Bhuria
Course Name/Code	Electrical Safety (2000141)
Objectives	To aware about electric shock or other injuries resulting from either direct or indirect electrical contact
Content	<ul style="list-style-type: none"> • Introduction: Rules, Slogan, Poster, Devices • Principles, Working of Safety department • Safety Tips • Safety concerns • Electrical Safety-Related Work Practices • Electrical Hazards
Contact hrs. per semester	30
Outcomes	<p>After completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Aware about the importance of electrical safety in day to day life. 2. Know about the safety devices 3. Familiar with electrical safety rules and Government policies issued time to time

Name of Faculty Mentor	Abhilash Sonker
Course Title	Microsoft Office -Excel Skills (2000142)
Objectives of Course	In this student will familiarize with basics of spreadsheet construction and formatting with a basic overview of how to generate formulas and use of functions for data analysis.
Content	Create Worksheets and Workbooks, Navigate in Worksheets and Workbooks, Format Worksheets and Workbooks, Customize Options and Views for Worksheets and Workbooks, Configure Worksheets and Workbooks for Distribution, Apply Custom Data Formats and Validation, Apply Advanced Conditional Formatting and Filtering, Create and Modify Custom Workbook Elements, Create and Manage Tables, Manage Table Styles and Options, Filter and Sort a Table, Summarize Data by using Functions, Perform Conditional Operations by using Functions, Format and Modify Text by using Functions, Create Charts, Format Charts, Insert and Format Objects.
Contact hrs	30 hrs
Outcomes of Course	After completing this course, the students will be able to: <ol style="list-style-type: none"> 1. Gain the basic skills needed to operate and navigate MS Excel. 2. Calculate, organize, and evaluate quantitative data

Name of Faculty Mentor	Neha Bhardwaj
Course Title	Know your Country History, Culture & Traditions (2000143)
Objectives of Course	<ul style="list-style-type: none"> • To understand Indian History; From Chanakya to Britishers & Britishers to Indian Govt. • To understand culture & traditions of various states wrt dress, dance, music and foods.
Content	<ol style="list-style-type: none"> 1. Rulers 2. Winners & their struggle 3. State Power 4. State Culture 5. State Traditions
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of the course, students would be able to:</p> <ol style="list-style-type: none"> 1. Identify cultures & traditions of various states. 2. Interpret qualitative and quantitative data in order to evaluate historical events

Name of Faculty Mentor	Nidhi Saxena
Course Title	Technical writing (2000144)
Objectives of Course	The aim of the course is to familiarize the students to prepare an articles, technical reports, thesis, books, and slide presentations using technical writing and drawing tools for block diagrams, graphs, referencing, equations etc.
Content	<p>Introduction: Introduction and Installation of Tools for writing, drawing of block diagram, graphs, referencing etc. Article writing: Prepare the articles according to the different publishers like IEEE, Elsevier, springer etc. Technical Report Writing: Preparing filesfor practical's, seminars, presentations etc.</p> <p>Thesis writing: Writing all the chapters of the thesis without repetition of tables, images, graphs etc. according to the institute format Books writing: Writing all the chapters of the book without repetition of tables, images, graphs etc. according to the publisher format Slide Presentation: Preparing of the slide of the presentation including Table, Figures, block diagrams, referencing etc.</p>
Contact hrs	30 hrs
Outcomes of Course	<p>After completion of the course, students would be able to:</p> <ul style="list-style-type: none"> • Work on the skill of using high-quality typesetting systems for publication of research papers, thesis and book chapters etc. • Create Tables, Graphics and Pictures Lists, Arrays and Bibliography • Create Slides with Beamers and posters.

Name of Faculty Mentor	Pooja Sahoo
Course Title	“The Smith Chart” concepts for solving complex network problems (2000145)
Objectives of Course	To aware the students about the smith chart tool for visualizing the impedance of a transmission line and antenna system as a function of frequency.
Content	Smith Chart, Types of Smith Charts, Z Chart, Y Chart, ZY chart, reflection coefficient, Impedance calculations, Admittance calculations, Impedance matching , Determining VSWR, scattering parameters, noise figure circles, constant gain contours and regions for unconditional stability, and mechanical vibrations analysis, stub matching- single stub matching, Double stub matching
Contact hrs	30
Outcomes of Course	After completion of the course, students would be able to: Solve the complex network and transmission line on any load related problems using smith chart tool.

Name of Faculty Mentor	Vikram Saini
Novel Engaging Course Title	Basic Course in Numerical Simulation using Scilab (2000146)
Objectives of Course	<ul style="list-style-type: none"> • To introduce the Scilab. • To acquaint the application of Scilab to circuit equations simulation.
Content	<ol style="list-style-type: none"> 1. Introduction: Introduction to Scilab, Interface, Command Window, Directory, Variable Browser 2. Mathematical Environment: Mathematical Expressions, Equations, Operators, Mathematical Structures, Arrays, Vectors, Matrices, and Matrix operations. 3. Plotting and Data Access: 2D Plots, Special Plots, Multiple Plots, 3D Plots, and file Operations. 4. Numerical simulation: Numerical Differentiation, Numerical Integration, Newton Rapson in single variable. 5. Applications: Solutions of Linear Equations, Electrical circuits equations Simulation and solution of electrical circuits.
Contact hrs	30 hrs
Outcomes of Course	<p>After successfully completing this course, students will be able to</p> <ol style="list-style-type: none"> 1. Recognize with the environment of Scilab and its related components for programming. 2. Apply the knowledge of mathematical environment of Scilab to solve mathematical equations. 3. Transform the raw data into useful information by using plots and data file operations. 4. Write code for the numerical simulation techniques in Scilab 5. Apply the functions to get the solutions of linear equations and electrical circuit equations.

Name of Faculty Mentor	Shubhi kansal
Course Title	Digital Image Enhancement Techniques (2000147)
Objectives of Course	<ol style="list-style-type: none"> 1. To study the image fundamentals and mathematical transforms necessary for image processing. 2. To study the image enhancement techniques.
Content	Basics of images, Gray and Colour images, Properties of images, Various transformations on images, Simulation through MATLAB.
Contact hrs	30 per semester
Outcomes of Course	<p>After the completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Know the basics of images. 2. Apply various transformations on images and analyze the results. 3. Apply enhancement techniques through MATLAB.

Name of Faculty Mentor	Jyoti Vimal
Course Title	Project Management (2000148)
Objectives of Course	<ul style="list-style-type: none"> • To understand the concepts of Project Management for planning to execution of projects. • To understand the feasibility analysis in Project Management and network analysis tools for cost and time estimation. • To analyze, apply and appreciate contemporary project management tools.
Content	<p>Introduction to Project Management :Project Definition, Project Performance Dimensions, Project Life Cycle, Project Classification, Benefits of Project Management Approach</p> <p>Project Identification and Formulation: Economic and Market Analysis, Technical Analysis, Financial Analysis, Risk and Uncertainty, Project Appraisal</p> <p>Project Management Techniques: Bar Charts, Gantt Chart, Milestone Chart</p> <p>Networks analysis: Programme Evaluation and review Technique, Critical Path Method, Expected Time, Earliest Start Time, Latest Start Time, Optimistic time, Most likely time, Pessimistic time</p>
Contact hrs	30 per semester
Outcomes of Course	<p>On completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Know about the project characteristics and various stages of a project. 2. Gain the conceptual clarity about project organization and feasibility analyses 3. Analyze the techniques for Project planning, scheduling and Execution Control.

Name of Faculty Mentor	Parul Saxena
Novel Engaging Course	Software Model and Project Management Life Cycle (2000149)
Objectives	<ul style="list-style-type: none"> • To describe key concepts, issues, and operational terminology in developing models • To normalize any application problem using 1st, 2nd, 3rd, 4th, 5th normal form • To draw DFDs using specific rules and components to depict logical process models
Content	<ol style="list-style-type: none"> 1. ER model, DFD 2. Relational Algebra & SQL 3. Functional Dependencies and Normalization 4. System Development Life Cycle (SDLC) 5. Project documentation
Contact hrs	30
Outcomes	<p>After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Define the terminology, features, classifications, and characteristics embodied in database systems. • Design principles for logical design of databases, including the E-R method and improve the database design by normalization. • Design and mapping of different real world problems using SDLC • Identify and select the most suitable conversion strategy for a new application

Name of Faculty Mentor	Dhananjay Bisen
Course Title	Statistical data analysis through programming (2000150)
Objectives of Course	To develop ability among students that deal with numerical and quantitative issues in real-time data as well as to enable the use of statistical and graphical libraries of programming in data analysis.
Content	Introduction to programming languages, Programming libraries for statistical analysis, numerical computing, complex mathematical computation, data visualization, working with all libraries and packages.
Contact hrs	30 per semester
Outcomes of Course	Students will be able to <ul style="list-style-type: none"> 1. Develop programming abilities with statistical analysis of data. 2. Use statistical libraries for working with data sets.

Name of Faculty Mentor	Ankit Tiwari (Part I and Part II), Varun Sharma (Part III), Nitin Upadhyay (Part IV)
Course Title	Innovation- From Creativity to Entrepreneurship
Part I- Idea Generation (2000151)	
Objectives of Course	<ul style="list-style-type: none"> • To understand and apply certain methods of idea generation on any self chosen topic. • To understand and apply methods such as Mind Mapping & Clustering, Concept Mapping. • To understand Scenario Techniques, Roadmapping and many more - always in a structured process.
Content	Idea Generation Process, Innovation Process and fuzzy front end, Design Aspects, Methods, Sources, Context Definition, Agenda Setting, Problem Representation, Present Situation and Future Assumptions, Bundling Projection, Interpretation of Scenario, Wild Cards, SWOT, Proposals for Action, Definition of a Road- mapping Topic, Needs Analysis, Analysis of Potentials, Establishing a Roadmap, Consistency Analysis and Evaluation.
Contact hrs	30 Hours per semester
Outcomes of Course	On completion of this course, the student will be able to: <ul style="list-style-type: none"> • Acquire an understanding about Idea Generation Process. • Acquire an understanding about context definition, agenda setting, and problem representation. • Conduct consistency analysis and evaluation. • Perform SWOT analysis
Part II-Technology, Science, Innovation, and Society (2000152)	
Objectives of Course	Primary objective of the course is to understand the social shaping of technology (how science and technology together shape the way to solve real life problem). Another objective of the course is to understand the meaning of innovation (as no single definition of innovation and therefore different researchers, scholars and scientists shifted their emphasis from its definition to innovation processes understanding and proposed different models) and its relevance for the development of the society.
Content	<ol style="list-style-type: none"> 1. Techno science and the Interpenetration of Science & Technology (questioning the trans boundary between technology and science and how science and technology shapes human experience) 2. Social-Psychological Theories of Innovation. 3. Innovation and its impact in the society. 4. Gender and Technology.
Contact hrs	30
Outcomes of Course	Students will be able to: <ol style="list-style-type: none"> 1. Develop an understanding of Science – Technology relationship 2. Acquire an understanding of transition in Socio-Technical Systems. 3. Recognize how gender influences technologies.

Part III: Challenges and Opportunities (2000153)	
Objectives of Course	<p>To introduce the basics of entrepreneurship skills.</p> <p>To introduce the existent entrepreneurial support system</p> <p>To introduce the concept of product/service selection</p> <p>To introduce the concept of formulation of business plan, analysis and extension</p>
Content	<p>Introduce the idea of entrepreneurship, the core competencies, creativity and innovation, basic case studies.</p> <p>Explaining the existing support system at various level including financial and tech support, basic outlines of MSME act, Loans and Grants, Legislations and Acts</p> <p>Explaining the basics of opportunity sensing, idea generation by opportunity identification, product or service selection based on the idea.</p> <p>Essentials of the formulation and launch of business plan, team building and networking, understanding the art of pitching</p>
Contact hrs	30 hrs
Outcomes of Course	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Know the basics of entrepreneurship 2. Acquire an understanding about the existing financial and tech support 3. Groom ideas as per the market needs by surveys and research 4. Setup a business plan
Part IV: Start-up: How to start, survey, Financial, Legal, Pitching and Funding (2000154)	
Objectives of Course	The main objective of this course to help students get their innovation, ideas and ventures to the next level through learning. To promote the start activity.
Content	<p>Identify your idea, idea assessment, market survey, customer, Legal foundation, fundamentals like company registration, patent, compliances. Understanding basic of finance, how to build effective business model, fundraising, understand investor mindset, valuation of companies.</p> <p>Pitching, learn how to approach investors, key focus area, various scheme funds offered by Govt. of India.</p>
Contact hrs	30
Outcomes of Course	<p>On completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Learn new technology/ knowledge/ innovation based startups. 2. Identify legal issues that impact financial and other risks affecting business. 3. Prepare for Pitching & Term Sheet

Name of Faculty Mentor	Varun Sharma
Course Title	Entrepreneurship: Concept to Company
Part I -Technology enabled Idea Generation and Innovation (2000155)	
Objectives of Course	<ol style="list-style-type: none"> 1. To understand and apply certain methods of idea generation on any self chosen topic. 2. To understand and apply methods such as Mind Mapping & Clustering, Concept Mapping 3. To understand the social shaping of technology (how science and technology together shape the ways to solve real-life problem). 4. To understand the meaning of innovation (as no single definition of innovation and therefore, different researchers, scholars and scientist shifted their emphasis from its definition to innovation processes understanding and proposed different models) and its relevance for the development of the society.
Content	Idea Generation Process, Innovation Process and fuzzy front end, Design Aspects, Methods, Sources, Context Definition, Agenda Setting, Problem Representation, Present Situation and Future Assumptions, Bundling Projection, Interpretation of Scenario, Wild Cards, SWOT, Proposals for Action, Definition of a Road-mapping Topic, Needs Analysis, Analysis of Potentials, Establishing a Roadmap, Consistency Analysis and Evaluation Techno science and the Interpenetration of Science & Technology (questioning the trans boundary between technology and science and how science and technology shapes human experience). Social-Psychological Theories of Innovation, Innovation and its impact in the society, Gender and Technology.
Contact hrs	30
Outcomes of Course	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the basics of entrepreneurship 2. Acquire an understanding about the existing financial and tech support 3. Groom their ideas as per the market needs by surveys and research 4. Setup a business plan
Part II Introduction to Entrepreneurship and Startup (2000156)	
Objectives of Course	<ol style="list-style-type: none"> 1. To introduce the basics of entrepreneurship skills. 2. To introduce the existent entrepreneurial support system(including possible sustainability options run by government and private institutions) 3. To introduce the concept of product/service selection (including scientific survey techniques) 4. To introduce the concept of formulation of business plan, analysis and extension. 5. To introduce the concept of IPR (patent writing) 6. To introduce the idea of pitching for next levels of funding and marketing

Content	<p>Broad outline of the course content will be:</p> <p>Part a) Introduce the idea of entrepreneurship, the core competencies, creativity and innovation, and basic case studies.</p> <p>Part b) Explaining the existing support system at various levels including financial and tech support, basic outlines of MSME act, Loans and Grants, Legislations and Acts</p> <p>Part c) Explaining the basics of opportunity sensing, idea generation by opportunity identification, and product or service selection based on the idea.</p> <p>Part d) Essentials of the formulation and launch of a business plan, team building and networking, and understanding the art of pitching.</p>
Contact hrs	30
Outcomes of Course	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Develop an understanding of the basics of entrepreneurship 2. Acquire an understanding about the existing financial and tech support 3. Groom their ideas as per the market needs by surveys and research 4. Setup a business plan

Name of Faculty Mentor	C S Malvi
Novel Engaging Course	Bhagwad Gita- An introduction (2000157)
Objectives	To familiarise students with the teachings of Bhagwad Gita to become successful in life.
Content	There are five main part of <i>Bhagwad Gita</i> course (i) depression and Motivation management, (ii) living entity (Jiv), (iii) Prakriti (Material Nature), (iv) Kala (time) and (v) Karma (Action).
Contact hrs	30
No. of sem. required	1
Outcomes	<p>After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Realize the scope and relevance of the pursuits of knowledge and action in the <i>Bhagavad Gita</i>. 2. Resolve paradoxes and seemingly competing viewpoints in the verses. 3. Gain clarity on the meaning of moksa, karmayoga, bhakti, and meditation, in the Gita. 4. Discern some of the paradigms that underlie various interpretations of the Gita.