

AMZ Company workshops list

1)TWO DAYS PRACTICAL WORKSHOP PROGRAM ON FORMULA 1 VEHICLE DESIGN & DYNAMICS FORMULA 1 VEHICLE DESIGN & DYNAMICS

SESSION 1

- ☺ Introduction to “Automobile Engineering”
- ☺ Difference b/w super,ATV,sports,formula car
- ☺ Chassis
- ☺ Goals ofchassis
- ☺ Types of chassis:
- ☺ Monocoque
- ☺ Ladder-frame
- ☺ Space-frame
- ☺ Back-bone chassis
- ☺ Types ofcars based on that
- ☺ Rigidity and uses of different types ofchassis
- ☺ Suspension system for on road and off road applications
- ☺ Types ofsuspension springs
- ☺ Uses and applications of each
- ☺ Concept of all terms related to suspension designing
- ☺ (camber / caster / king pin inclination / toe angle /bump & rebound / spring rate / camber thrust /jacking forces)
- ☺ Types of dampers and application
- ☺ Suspension mechanisms
- ☺ Scrub radius
- ☺ Tire mechanism
- ☺ Tire nomenclature

SESSION 2

- ☺ Steering mechanism
- ☺ Types of steering mechanism
- ☺ Co-ordinate system for mechanism
- ☺ Euler angles
- ☺ Turning radius
- ☺ Cornering stiffness
- ☺ Slip angle
- ☺ Steering ratio
- ☺ Derivation of turning equation
- ☺ Concept of understeer and oversteer
- ☺ Concept of drifting
- ☺ Suspension designing and balancing parameters

- ⊘ Jacobian matrix application in automotive dynamics

SESSION 3

- ⊘ F.E.A
- ⊘ 4 Anti-dive and anti-squat geometry
- ⊘ Balancing of Double wishbone suspension for off-road and on road application
- ⊘ Spring rate and dynamic camber calculation
- ⊘ Camber change rate
- ⊘ Front view swing arm & side view swing arm length calculation
- ⊘ Braking mechanism
- ⊘ Braking dynamics
- ⊘ Braking performance triangles
- ⊘ Designing parameters for disc brakes

SESSION 4

PRACTICAL SESSION ON FORMULA ONE VEHICLE.

Date

January 28 & 29,2020

Timings

Session-1 : 09:30 pm - 12:30 pm

Session-2 : 02:00 pm - 05:00pm

Venue

Departmental seminar hall

2)Two Day workshop

Driverless Autonomous car

Content:-

- 1) Introduction to Autonomous car
- 2) Level of driving Automation
- 3) History
- 4) Concept of design
 - 4.1) vehicle dynamics.
 - 4.2) vehicle longitudinal control.
 - 4.3) vehicle lateral control.
- 5) VCU (vehicle control unit) (single board for input and output)
 - 5.1) what is VCU system?
 - 5.2) how VCU take signal and give feedback to vehicle?

- 5.3) How to design VCU as per Level of Driving Automation.?
- 5.4) Steering control
 - 5.4.1) Type of motor used?
 - 5.4.2) feedback sensor used?
 - 5.4.3) Defining the particular angle dynamically?
- 5.5) Brake control
 - 5.5.1) Actuator used?
 - 5.5.2) feedback sensor used?
 - 5.5.3) Deceleration ratio (how to control sudden and gradual braking)
- 5.6) Acceleration
 - 5.6.1) Electric vehicles
 - 5.6.1.1) VCU connection to motor controller.
 - 5.6.2) Gasoline engine.
 - 5.6.1.2) Servo motor or actuator connection to engine throttle.
- 6) PCU Architecture (Perception Control Unit)
 - 6.1) Ultrasonic sensor
 - 6.2) Radar
 - 6.3) Optics
 - 6.4) Lidar
- 6.5) GPS
- 7) Path Planning with PCU
 - 7.1) Lane detection and keeping.
 - 7.2) Obstacle avoidance control.
 - 7.3) Tracking way point.
 - 7.4) Road sign recognition.
 - 7.5) traffic signal recognition.
- 8) Generation of algorithm For Path Planning
- 9) Integration of information received to generate the path, and to deliver to VCU.
- 10) Common security vulnerabilities
 - 10.1) Software glitches.
 - 10.2) need of constant update
 - 10.3) signal error
- 11) Cyber security thread, concern and take away solution.
- 12) Case Study
- 13) Future market and scope and industrial value.
- 10) Live demonstration of the Autonomous vehicles Based on the same technology.

Date

January 28 & 29,2020

Timings

Session-1 : 09:30 pm - 12:30 pm

Session-2 : 02:00 pm - 05:00pm

Venue

AB-I 201

3)2 DAYS

WORKSHOP ON

NDT Non-Destructive Testing (NDT)

- ☺ About NDT
- ☺ NDT Booking Procedures
- ☺ NDT Training – Access Conditions
- ☺ Eddy Current Testing
- ☺ Magnetic Particle Testing
- ☺ Penetrant Testing
- ☺ Visual Testing
- ☺ Radiographic Testing
- ☺ Ultrasonic Testing
- ☺ Portable Hardness Testing
- ☺ Replica Metallography
- ☺ NDT Level 3 Basic and Main Methods
- ☺ NDT CPD Courses
- ☺ NDT Re-Writes: Booking Procedures
- ☺ NDT Revision and Re-Writes

Date

January 28 & 29,2020

Timings

Session-1 : 09:30 pm - 12:30 pm

Session-2 : 02:00 pm - 05:00pm

Venue

AB-I 202

4)2 DAYS

WORKSHOP ON

Solar Technology with PLC Scada Solar Technology with PLC Scada

Solar Technology is attracting attention not only in the research, industry and policy domain, but also in academic institutions. The workshop will cover various projects and practicals including home automation using PLC SCADA and Solar Technology. Motive of the workshop is to make students aware of the solar energy scenario as well as hands on session on inverters and controllers, etc.

Solar Energy Scenario

- ☺ Policy Initiatives
- ☺ Challenges
- ☺ Technical and Regulatory Issues.
- ☺ Electrical and Electronics Fundamentals.

Basic Principles, Concepts of Photovoltaic Cells and Components.

- ☺ Highly Efficient Technologies and Performance Indicators of Solar PV Modules
- ☺ Solar Inverters and Battery Systems- Technologies and Performance Indicators ☺

Maximum Power Point Tracking (MPPT) Charge Controllers

- ☺ Hands-on Session on Inverters and Charge Controllers
- ☺ Hands-on Session on Solar Tools (crimping tool, wires, solar connectors)
- ☺ Site Design and Analysis, Smart Tools
- ☺ System Designing of PV for Off-grid, On-grid & Hybrid

Quality Standards for Off-Grid and On-Grid Solar PV Systems (design, installations & service)

Operation, Maintenance and Trouble Shooting.

Practical: Solar Pumping

Practical: Lightening Applications

Project: Solar Charger

Project: Home Automation using PLC-SCADA and Solar.

Case Study on System Design

Date

January 28 & 29,2020

Timings

Session-1 : 09:30 pm - 12:30 pm

Session-2 : 02:00 pm - 05:00pm

Venue

EEE Department Simulation Lab

5)WEBSITE DESIGN USING PYTHON

Course Content

1. Introduction to Python

Learn the basics of Python including Variables, Functions, Selection & Looping statements

2. Classes and objects

Learn various object-oriented constructs like composition, inheritance, and abstract classes

3. Modules & Packages

Understand how to use the built-in modules and packages available in the Python library

4. Exception handling

Learn to handle exceptions in Python & build your custom exceptions and use them in Python programs

5. Data Structures

Use the various data structures like list, tuple, set, dict provided at the language level

6. Introduction to Django

Know the basics of Django and learn how to install the Django framework and its

dependencies

7. Templates

Learn how to use the Django templates that represent the HTML GUI that the client can view.

8. Model layer

Learn more about Django models, model relationships, querying models & connecting to MySQL database.

9. Django Admin

Know how to reuse your first built-in Django app and learn to customize the

Django admin app.

10. Routing in Django

Learn to build REST web services and mapping web URLs with view functions & perform complex routing.

11. Django Sessions

Learn to use the built-in HTTP session object parameters to control the session behaviors/patterns.

12. Django Forms

Understand the process of building, handling, submitting & validating HTML forms in the Django way.

Date

January 28 & 29,2020

Timings

Session-1 : 02:00 pm - 5:00 pm

Session-2 : 07:30 pm - 10:30pm

Venue

AB-I 313,314 classes

6)2 DAYS TRAINING ON Aspen Plus

Objective:-

Aspen Hysis (Advanced System for Process Engineering) is based on techniques for solving flow sheets that were employed by process engineers many years ago. It is widely used process simulator in various chemical, petrochemical, petroleum refining, polymer and coal based plants.

Programming software can be used for solve model structures of chemical process with a small number of equations. However, as the complexity of the model structure increases by the addition of several processes, solving large set of equations becomes challenge. ASPEN plus comes handy while dealing with these situations.

CONTENT

- ⊗ Introduction to Aspen Hysis
- ⊗ Introduction to Flow sheet Simulation
- ⊗ Properties Analysis
- ⊗ Unit Operation Model
- ⊗ Running Simulation in Aspen Plus – Simple Units
- ⊗ Running Simulation in Aspen Plus - Reactor Design
- ⊗ Running Simulation in Aspen Plus - Distillation Column Design
- ⊗ Heat Exchangers
- ⊗ Workshop Examples

Date

January 28 & 29,2020

Timings

Session-1 : 02:00 pm - 5:00 pm

Session-2 : 07:30 pm - 10:30pm

Venue

Chemical Department Simulation Lab-1

7)Course Name: Machine Learning & Artificial Intelligence

Course Overview: This course aims to provide an introduction to the basic principles, techniques, and applications of Machine Learning & AI. Programming assignments are used

to help clarify basic concepts.

1)Develop expertise in popular AI & ML technologies and problem-solving methodologies

2)Develop ability to independently solve business problems using AI & ML

3) Learn to use popular AI & ML technologies like Python, Anaconda (Spyder) to develop

applications

4) Develop a verified portfolio with some projects and algorithms that will showcase the new

skills acquired

- Python for AI (Significant Functions, Packages and Routines)

- Statistics & Probability (Descriptive & Inferential Stats,

- Probability & Conditional Prob)

- Visualization principles and techniques

- Regression (Linear, Multiple, Logistic)

- Classification (k-NN, naïve Bayes) techniques

- Decision Trees

- Clustering (k-means, hierarchical, high-dimensional)

- Expectation Maximization

- Value-based methods (e.g. Q-learning)

- Policy-based methods

- Neural Network Basics

- Deep Neural Networks

- Recurrent Neural Networks (RNN)

- Deep Learning applied to Images using CNN

- Tensor Flow for Neural Networks & Deep Learning

- Convolutional Neural Networks

- Keras library for deep learning in Python

- Pre-processing Image Data

- Object & face recognition using techniques above

- Statistical NLP and text similarity

- Syntax and Parsing techniques

- Text Summarization Techniques
- Semantics and Generation
- Uninformed and heuristic-based search techniques
- Adversarial search and its uses
- Planning and constraint satisfaction techniques

During the program duration, candidates will work on projects that will involve hands-on

exposure to the following

Python

Data Libraries such as Pandas, Numpy, Scipy

Python Machine Learning library such as scikit-learn

Python visualization library such as Matplotlib

Natural Language Processing library such as NLTK

Tensor Flow

Keras

In addition to this, there will be 8 mini projects spread across topics such as:

Supervised Learning

Unsupervised Learning

Ensemble Techniques

Reinforcement Learning

Deep Learning

NLP

NOTE: Each Session time hours will include theory and practical session both.

NOTE:

Each Session time hours will include theory and practical session both.

Especially for students of Department of CSE

Duration

Total 15 hours

Date

January 28 & 29,2020

Timings

Session-1 : 02:00 pm - 5:00 pm

Session-2 : 07:30 pm - 10:30pm

Venue

Computer Science Department Programming Lab

8)2 DAYS

WORKSHOP ON

SURVEYING USING TOTAL STATIONSURVEYING USING TOTAL STATION: - 2 DAYS

About the Course

This course is designed to prepare the students to handle sophisticated survey equipment and to execute large survey projects. Knowledge in using Total Station offers careers in various segments where Total

Station finds application like Surveying: Survey and Land records, Disaster Management Archaeological

Survey And mainly in Civil Construction Companies: Levelling, Road profiling, new roads Cut/Fill

calculations, Laying of new railway lines.

Course Highlights

- ⊗ Introduction to Survey using Total Station and GPS
- ⊗ Interactive lecture sessions with good multimedia content
- ⊗ Exposure to different types of Survey projects carried out in present day industry
- ⊗ Hands on experience in using Total Station
- ⊗ Hands on practical session on Plotting and mapping in CAD
- ⊗ Topographical Survey using Total Station
- ⊗ Entire survey and plotting of maps to be carried out by participants on their own

Lecture: Participants would be taught various concepts involved in Surveying as well as various methods of data collection using Total Station

Content includes:

- ⊘ Importance of Surveying in present day life
- ⊘ Methodologies adopted and instruments used for surveying presently and in earlier days
- ⊘ Types of surveying data collection methods
- ⊘ Several Surveying methods (like traverse, triangulation) to provide the control points
- ⊘ Bowditch Adjustment Method

Practical session using Total Station:

⊘

Participants will be given hands on experience in using Total Station. They will be working in

teams and perform survey operations using Total Station for a particular area

- ⊘ Topographic survey using closed traverse method
- ⊘ Downloading the data from Total Station to computer and adjustment of the close traverse by

Bowditch method

⊘

Remote height calculation

Date

January 28 & 29,2020

Timings

Session-1 : 09:30 am - 12:30 pm

Session-2 : 02:00 pm - 5:00pm

Venue

Civil Engineering Department Seminar hall

9)Process design workshop:

OVERVIEW

Process Plant means an industrial occupancy where materials, including flammable liquids,

combustible liquids or Class 2 gases, are produced or used in a process. Process plant industry covers

a wide spectrum of industries like Oil & Gas Production, Chemical, Nuclear Fuel Processing,

Petroleum Refining, Gas Supply, Electricity Generation, Steel, Water & Sewerage, Food & Drink

Industry. The Program focusses on Process Equipments, Layout, Piping Design, Plot Plans &

Isometrics for Process Plant Engineering with Practical Examples.

WHAT YOU WILL LEARN:

- ☺ Basic design requirements based on the types of plants / projects.
- ☺ Introduction to PFD, P&ID and PDS of equipments.
- ☺ Relevant Codes and Standards used in industry.
- ☺ Development of PFD: Process & Utility.
- ☺ Mass and Energy balance - Design Basis, Sample Calculations and Utility Sizing.
- ☺ Interlocks, Control Philosophy, Valves Selection and sizing, Safety valves sizing.
- ☺ Development of P&ID: Process and Utility, Line Sizing & Pressure Drop Calculations.
- ☺ Pump Selection and sizing.
- ☺ Heat Exchanger Design (Thermal Design).
- ☺ Distillation Column Design.
- ☺ Available Software used in industry and their applications.

Topics to be Covered in Workshop

Introduction to Process Engineering

- ☺ Introduction
- ☺ Overview of an Engineering Organization
- ☺ Role of a Process Engineer
- ☺ Project Documentation

Basic Engineering Package:

- ☺ Overview of Basic Engineering Package.
- ☺ Basic design requirements based on the types of plants / projects.
- ☺ Introduction to PFD, P&ID and PDS, Equipment list, line list Equipment data sheets
- ☺ Development of PFD, PFD specification,
- ☺ Development of P&ID,
- ☺ International Codes & Standards ☺ Fundamentals of Material Balance
- ☺ Fundamentals of Energy Balance
- ☺ Process Block Diagram

Process Equipments Detail Design & Sizing:

- ☺ Heat Exchangers
- ☺ Pumps
- ☺ Pressure Vessel
- ☺ Separation Column
- ☺ Control Valve,
- ☺ Reactor Technology

Process Simulation:

- ☺ Butane, LPC Column simulation
- ☺ Light Nephtha, CO₂ Absorber
- ☺ Striper Design

Pipe Hydraulics & Line Sizing

- ☺ Flow rate, velocity, pipe sizing calculations
- ☺ Reynolds number- laminar/turbulent flow
- ☺ Darcy weisbach & hazen William equations
- ☺ pressure drop calculations, NPSH calculations

Equipments Used in Process Plants

☺

Process equipment

- Reactors
- Towers
- Exchangers
- Furnaces
- Vessels
- columns

Mechanical equipment

- Pumps
- Compressors
- Storage tanks

Date

January 28 & 29,2020

Timings

Session-1 : 02:00 pm - 5:00 pm

Session-2 : 07:30 pm - 10:30pm

Venue

Chemical Department Simulation Lab-2

Contact us

For more information Feel free to contact us

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REGISTRATIONS:Please visit **antahpragnya2020.rgukt.ac.in**

Registration fee per workshop

-400/- for RGUKTians

-950/- for Non-RGUKTians

Mode of payment:Online is accepted in the above link.