



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)

EXAMINATION BRANCH

GRIET/COE/3H/G/22-23

18 May 2023

(GR18 REGULATIONS – 2019 Admitted Batch)
OFFLINE MOOCS EXAMINATIONS MAY 2023 NOTIFICATION
FOR

GR18 Regulations	2019 Admitted Batch
------------------	---------------------

The students who appear for the above examinations scheduled in the month of May 2023 are to note that the registrations for internal and external examinations will be carried as per the time schedule given below.

Note:

1. For those students who completed their course work and could not attain required credits through MOOCS courses are only eligible.
2. Internals consists of 2 mid exams (20 marks) following GR18 Regulations Pattern and five assignments (10 Marks) covering entire syllabus. These Internals will be conducted on the day of External Exam.
3. External Examination follows GR18 Regulations Pattern.
4. Exam Timetable, Exam Subjects and their syllabi are attached below.

Exam fee payment at Exam Branch Counter


Fee Collection Starts from 19 May 2023

Last Date Without Late Fee	:	23.05.2023	3.30PM
Last Date With Late Fee of Rs.100/-	:	25.05.2023	3.30PM
Last Date With Late Fee of Rs.1000/-	:	26.05.2023	3.30PM
Last Date With Late Fee of Rs.2000/-	:	27.05.2023	3.30PM

SUPPLEMENTARY EXAMINATION FEE

Each Course (both Internals & Externals)	Rs. 1000/-
--	------------

DATE: 18/05/2023


Controller of Examinations



GR18
NPTEL

Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)

EXAMINATION BRANCH

IV B.TECH II SEMESTER- GR18 REGULATIONS SWAYAM OFFLINE EXAMINATIONS, MAY 2023

TIME TABLE

Timings: 10.00 AM to 01.00 PM


Date Branch	29/05/2023, FN (Monday)	31/05/2023, FN (Wednesday)
CE (01)	GR18A6025 Project Planning and Control	GR18A60 Safety In Construction
EEE (02)	GR18A6035 Introduction to Internet of Things (Common to EEE & ECE)	GR18A6028 Cloud Computing
ME (03)	GR18A60 Robotics	GR18A60 Programming in Java
ECE (04)	GR18A6035 Introduction to Internet of Things (Common to EEE & ECE)	GR18A6034 The Joy of Computing Using Python (Common to ECE, CSE & IT)
CSE (05)	GR18A6032 Data Science for Engineers	GR18A6034 The Joy of Computing Using Python (Common to ECE, CSE & IT)
IT (12)	GR18A6033 User Centric Computing for Human Computer Interaction	GR18A6034 The Joy of Computing Using Python (Common to ECE, CSE & IT)

Any discrepancy in the above schedule may please be informed to COE immediately.

Note:

Mid – I & Mid – II Exams for the above subjects are scheduled on the same day from **02.00 PM to 05.00 PM** following GR18 Mid Paper Pattern.

DATE: 18/05/2023


Controller of Examinations

MOOCs Offline Exam Registration Subjects

S No.	Department	Subject Name
1	CIVIL	Project Planning and Control
2	CIVIL	Safety In Construction
3	EEE / ECE	Introduction to Internet of Things
4	EEE	Cloud Computing
5	MECHANICAL	Robotics
6	MECHANICAL	Programming in Java
7	ECE/CSE / IT	The Joy of Computing using Python
9	CSE	Data Science for Engineers
10	IT	User Centric Computing for Human Computer Interaction

PROJECT PLANNING AND CONTROL (CIVIL) SYLLABUS

UNIT I: Introduction - Course Context, Construction Project Management, Objectives of a Project, Scientific Way of Managing of Objectives, Construction Industry and National Growth, Project Stakeholders, Project Phases, Project Organization

UNIT II: Time Management - Overview, Basics of Work Breakdown Structure (WBS), Tools for Time Management, Work Breakdown Structure (WBS), Gantt Charts. Duration Estimation - Types, Inputs, Methods, Parametric Estimation, Factors influencing Productivity, Networks - Introduction, Techniques

UNIT III: Network Representation & Analysis - Introduction to Floats, Types of Floats, Usage of Floats for Project Decisions, Review Network Analysis Concepts.

UNIT IV: Time-Cost Trade-off - Fast-Tracking vs Crashing, Relationship between Activity Direct Cost & Activity Duration - Assumptions

UNIT V: Resource Scheduling - Resource Allocation, Resource Profile, Resource Levelling, Minimum Moment Concept, Applying Improvement Factor – Illustration. Precedence Diagramming Method (PDM), Project Monitoring & Control. Uncertainty in Project Schedules (PERT), Emerging Trends/Tools in Project Planning

SAFETY IN CONSTRUCTION (CIVIL) SYLLABUS

UNIT I

Introduction -Basic terminology in safety, types of injuries, safety pyramid, Accident patterns, theories of accident-causation.

UNIT II

Safety Budget -Planning for safety budget, safety culture, Introduction to OSHA regulations; Role of stakeholders in safety.

UNIT III

Safety Programs -Site safety programs - Job hazard analysis, accident investigation & accident indices-violation, penalty.

UNIT IV

On Site Safety -Safety during construction, alteration, demolition works - Earthwork, steel construction, temporary structures, masonry & concrete construction, cutting & welding

UNIT V

Safe Operating Procedures – SoPs, Construction equipment, materials handling-disposal & hand tools, Other hazards – fire, confined spaces, electrical safety; BIM & safety

INTRODUCTION TO INTERNET OF THINGS

(Common to EEE & ECE)

Syllabus

Unit -1: Introduction to IoT

Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs .

Unit -2: IoT & M2M

Machine to Machine, Difference between IoT and M2M, Software define Network.

Unit -3: Challenges in IoT

Design challenges, Development challenges, Security challenges, Other challenges.

Unit -4: Applications of IoT

Home automation, Industry applications, Surveillance applications, Other IoT applications.

Unit 5 : Developing IoTs

Introduction to Python, Introduction to different IoT tools, Developing applications through IoT tools, Developing sensor based application through embedded system platform, Implementing IoT concepts with python.

CLOUD COMPUTING

(EEE)

Syllabus

Unit 1: Introduction to Cloud Computing, Cloud Computing Architecture

Unit 2: Service Management in Cloud Computing, Data Management in Cloud Computing

Unit 3: Resource Management in Cloud, Cloud Security

Unit 4: Open Source and Commercial Clouds, Cloud Simulator

Unit 5: Research trend in Cloud Computing, Fog Computing

ROBOTICS

(MECHANICAL)

Syllabus

UNIT I: Introduction

Automation and Robotics, CAD/CAM and Robotics – An over view of Robotics – present and future applications – classification by coordinate system and control system.

UNIT II: Components of the Industrial Robotics

Function line diagram representation of robot arms, common types of arms. Components, Architecture, number of degrees of freedom – Requirements and challenges of end effectors, determination of the end effectors, comparison of Electric, Hydraulic and Pneumatic types of locomotion devices.

UNIT III:

Motion Analysis: Homogeneous transformations as applicable to rotation and translation – problems. Manipulator Kinematics: Specifications of matrices, D-H notation joint coordinates and world coordinates Forward and inverse kinematics – problems.

UNIT IV:

Differential transformation and manipulators, Jacobians – problems. Dynamics: Lagrange – Euler and Newton – Euler formations – Problems. Trajectory planning and avoidance of obstacles, path planning, Skew motion, joint integrated motion –straight line motion – Robot programming, languages and software packages.

UNIT V:

Robot actuators and Feedback components: Actuators: Pneumatic, Hydraulic actuators, electric & stepper motors. Feedback components: position sensors – potentiometers, resolvers, encoders – Velocity sensors.

Robot Application in Manufacturing: Material Transfer - Material handling, loading and unloading-Processing - spot and continuous arc welding & spray painting - Assembly and Inspection.

PROGRAMMING IN JAVA

(MECHANICAL)

Syllabus

Unit I

Introduction to OOP: Introduction, Need of object-oriented programming, principles of object-oriented languages, Applications of OOP, history of JAVA, Java Virtual Machine, Java features, Program structures, Installation of JDK.

Unit II

Programming Constructs: Variables, Primitive data types, Identifiers- Naming Conventions, Keywords, Literals, Operators- Binary, Unary and Ternary, Expressions, Primitive Type conversion and casting, flow of control- branching, conditional, loops. Classes and Objects- Classes, Objects, Creating objects, methods, constructors- constructor overloading, cleaning up unused objects- Garbage collector, class variable and methods static keyword, this keyword, arrays, Command line arguments.

Unit III

Inheritance: Types of Inheritance, Deriving classes using extends keyword, method overloading, super keyword, final keyword, abstract class. Interfaces: Interface, Extending interface, interface Vs Abstract classes.

Unit IV

Packages- Creating Packages, using Packages, Access protection, java I/O package. Exploring java.io and String classes.

Exceptions - Introduction, Exception handling techniques - try, catch, throw, throws, finally block, user defined Exception.

Unit V

Multithreading: java.lang. Thread, the main Thread, creation of new Threads, Thread priority, multiThreading- using isalive() and join(), Synchronization, suspending and resuming Threads, Communication between Threads.

THE JOY OF COMPUTING USING PYTHON

(Common to ECE & IT)

Syllabus

UNIT-I Motivation for Computing, Welcome to Programming, Variables and Expressions: Design your own calculator, Loops and Conditionals : Hopscotch once again. Lists, Tuples and Conditionals : Lets go on a trip, Abstraction Everywhere : Apps in your phone, Counting Candies , Crowd to the rescue, Permutations : Jumbled Words.

UNIT- II Magic square, Birthday Paradox: Find your twin, Guess a Movie Name, Analyse your Facebook data : 20 questions game : I can read your mind. Google Translate : Speak in any Language, Currency Converter : Count your foreign trip expenses, Monte Hall : 3 doors and a twist, Sorting : Arrange the books, Searching : Find in seconds.

UNIT-III Substitution Cipher : What's the secret !!, Tic-tac-toe game, Recursion, Snake and Ladder game, Sprial Traversing, GPS Tracking, Tuples, Image Processing: Fun with images, Jumble words, Anagrams .

UNIT-IV Natural Language processing, Sentiment Analysis : Spot the similarities Count the words : Hundreds, Thousands or Millions, Author Stylometry, Introduction to networkx, Six degree of separation etc, FLAMES, Data Compression techniques.

UNIT-V Browser Automation, Fun with calendar, Collatz Conjecture, Page rank algorithm

DATA SCIENCE FOR ENGINEERS

(CSE)

Syllabus

UNIT I: Introduction to R, Variables and datatypes in R, Data frames, Recasting and joining of data frames, Recasting and joining of data frames, Arithmetic, Logical and Matrix operations in R, Advanced programming in R : Functions, Control structures, Data visualization in R Basic graphics.

UNIT II: Linear Algebra and Statistics for Data Science: Solving Linear Equations, Linear Algebra Distance, Hyperplanes and Half spaces, Eigenvalues, Eigenvectors, Statistical Modelling, Random Variables and Probability Mass/Density Functions, Sample Statistics.

UNIT III: Introduction to Data Science, Solving Data Analysis Problems - A Guided Thought Process, Predictive Modelling, Linear Regression, Model Assessment, Diagnostics to Improve Linear Model Fit.

UNIT IV: Simple Linear Regression Model Building, Cross Validation, Multiple Linear Regression Modelling Building and Selection.

UNIT V: Classification, K - Nearest Neighbors (KNN), K - Nearest Neighbors implementation in R, K - means Clustering, K - means implementation in R.

USER CENTRIC COMPUTING FOR HUMAN COMPUTER INTERACTION

(IT)

Syllabus

UNIT 1: Introduction: Introduction to User Centric Computing(UCC) and history, Issues and challenges, Latest research trends, User-Centric Design and Software Engineering.

UNIT II: Engineering User-Centric Systems: Components of SDLC - Contextual Inquiry, - Design Guidelines Prototyping.

UNIT III: User-Centric Computing: The UCC framework with illustrative case study, User-Centric models descriptive, predictive models and taxonomy, Introduction to GOMS family of models

Computational user models (classical), Keystroke-Level Model(KLM), (CMN)GOMS Model, The Fitts' Law, The Hick-Hyman Law

UNIT IV: Computational user models(contemporary): 2D and 3D pointing models, The steering Law and constrained navigation, Model for hierarchial menu selection, Mobile typing models(sibgle finger and two thumb typing), Model for touch performance(FFitts' law),

Formal system models: Introduction to formal models in UCD, Formal modelling of user-computer dialogue.

UNIT-V: Empirical Research Methods: Introduction and research question formulation, Variables determination and experiment design, Data Analysis including model building

User-Centric Design Evaluation: Introduction to User-Centric design evaluation and expert evaluation technique, : User evaluation and model-based evaluation