I/428847/2023

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ

ಸಂಖ್ಯೆ:ಡಿಟಿಇ/17/ಸಿಡಿಸಿ(1)/2023(1082756)

ಆಯುಕ್ತರ ಕಛೇರಿ,
ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಭವನ, ಅರಮನೆ ರಸ್ತೆ,
ಬೆಂಗಳೂರು-560001, ದಿನಾಂಕ:19/05/2023.

ಇವರಿಗೆ:

ಕಾರ್ಯನಿರ್ವಾಹಕ ನಿರ್ದೇಶಕರು
ಕರ್ನಾಟಕ ಪರೀಕ್ಷಾ ಪ್ರಾಧಿಕಾರ
18ನೇ ಮುಖ್ಯ ರಸ್ತೆ, ಮಲ್ಲೇಶ್ವರಂ,
ಬೆಂಗಳೂರು 560 012.

ಮಾನ್ಯರೇ :

ವಿಷಯ: ಕರ್ನಾಟಕ ಪರೀಕ್ಷಾ ಪ್ರಾಧಿಕಾರವು 2023ನೇ ಸಾಲಿನಿಂದ ನಡೆಸುವ DCET (ಡಿಪ್ಲೋಮಾ ಸಾಮಾನ್ಯ ಪ್ರವೇಶ ಪರೀಕ್ಷೆ)ಗಳಿಗೆ ಪರಿಷ್ಕೃತ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಸಲ್ಲಿಸುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ: ಸರ್ಕಾರದ ಪತ್ರ ಸಂಖ್ಯೆ:ಇಡಿ 112 ಟಿಪಿಇ 2019 ದಿನಾಂಕ:10-08-2020

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ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಉಲ್ಲೇಖಿತ ಸರ್ಕಾರದ ಪತ್ರದಂತೆ 2020-21ನೇ ಸಾಲಿನಿಂದ ರಾಜ್ಯದ ಪಾಲಿಟೆಕ್ನಿಕ್‌ಗಳ ಡಿಪ್ಲೋಮಾ ವ್ಯಾಸಂಗದಲ್ಲಿ ಪರಿಷ್ಕೃತ ಸಿ-20 ಡಿಪ್ಲೋಮಾ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಅಳವಡಿಸಲಾಗಿದೆ. ಸದರಿ ಪರಿಷ್ಕೃತ ಸಿ-20 ಡಿಪ್ಲೋಮಾ ಪಠ್ಯಕ್ರಮಗಳಲ್ಲಿ ತರಬೇತಿ ಪಡೆದ ವಿದ್ಯಾರ್ಥಿಗಳು ಲ್ಯಾಟರಲ್ ಎಂಟ್ರಿ ಮುಖೇನ 2ನೇ ವರ್ಷದ / 3ನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಇ ವ್ಯಾಸಂಗಕ್ಕೆ ಪ್ರವೇಶ ಪಡೆಯುವ ಸಲುವಾಗಿ DCET ಅರ್ಹತಾ ಪರೀಕ್ಷೆಗಳನ್ನು ಪರಿಷ್ಕೃತ ಪಠ್ಯಕ್ರಮಗಳ ಪ್ರಕಾರ 2023ನೇ ಸಾಲಿನಿಂದ ತೆಗೆದುಕೊಳ್ಳಬೇಕಾಗಿರುತ್ತದೆ.

ಈ ಹಿನ್ನೆಲೆಯಲ್ಲಿ DCET ಅರ್ಹತಾ ಪರೀಕ್ಷೆಯ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಇಲಾಖೆಯು ಪರಿಷ್ಕರಿಸಿದ್ದು, ಪ್ರಾಧಿಕಾರವು 2023ನೇ ಸಾಲಿನಿಂದ ನಡೆಸುವ DCET ಅರ್ಹತಾ ಪರೀಕ್ಷೆಗಳಿಗೆ ಪರಿಷ್ಕೃತ DCET ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಅಳವಡಿಸಲು ಈ ಮೂಲಕ ಕೋರಿದೆ.

ಪರಿಷ್ಕೃತ DCET ಪಠ್ಯಕ್ರಮಗಳು, ಅಂಕಗಳು ಮತ್ತು ಪರೀಕ್ಷಾ ಅವಧಿಯ ಮಾಹಿತಿಯನ್ನು ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಿದ್ದು (CD ಮತ್ತು ಮುದ್ರಿತ ಪ್ರತಿ) ತಮ್ಮ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸಲಾಗಿದೆ.

"ಟಿಪ್ಪಣಿ ಮಾನ್ಯ ಆಯುಕ್ತರಿಂದ ಅನುಮೋದಿಸಲ್ಪಟ್ಟಿದೆ"

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಕೆ.ಇ 22/05/23
ನಿರ್ದೇಶಕರು.

ಪ್ರತಿ: ಮಾಹಿತಿಗಾಗಿ

1. ಮಾನ್ಯ ಆಯುಕ್ತರ ಆಪ್ತ ಶಾಖೆಗೆ.
2. ಜಂಟಿ ನಿರ್ದೇಶಕರು (ಪರೀಕ್ಷೆ), ತಾಂ.ಶಿ.ಇಲಾಖೆ
3. ಸಹಾಯಕ ನಿರ್ದೇಶಕರು(ಎಸಿಎಂ), ತಾಂ.ಶಿ.ಇಲಾಖೆ.
4. ಕಡತಕ್ಕೆ.

DCET Syllabus & Marks distribution with effect from the Year 2023
(As per C_20 Diploma Curriculum)

Govt. of Karnataka
Department of Collegiate and Technical Education

DCET SYLLABUS with effect from the Year 2023 As per C_20 Diploma Curriculum (Common to all Engineering Diploma Programmes) DURATION: 3 Hours		MAXIMUM MARKS:100
Sl.No	**TOPICS**	**MARKS**
1	**ENGINEERING MATHEMATICS**	**20**
2	**STATISTICS & ANALYTICS**	**20**
3	**IT SKILLS**	**20**
4	**FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING**	**20**
5	**PROJECT MANAGEMENT SKILLS**	**20**
	TOTAL	**100**

DETAILED SYLLABUS

1. ENGINEERING MATHEMATICS - 20 Marks

Topics	Sub Topics	Marks
I. Matrices And Determinants	• Matrix and types • Algebra of Matrices (addition, subtraction, scalar multiplicationand multiplication) • Evaluation of determinants of a square matrix of order 2 and 3. Singular matrices • Cramer's rule for solving system of linear equations involving 2 and 3 variables • Adjoint and Inverse of the non- singular matrices of order 2 and 3 • Characteristic equation and Eigen values of a square matrix of order 2	4
II. Straight Lines	• Slope of a straight line • Intercepts of a straight line • Intercept form of a straight line • Slope-intercept form of a straight line • Slope-point form of a straight line • Two-point form of a straight line • General form of a straight line • Angle between two lines and conditions for lines to be parallel and perpendicular • Equation of a straight line parallel to the given line • Equation of a straight line perpendicular to the given line	4

III. Trigonometry	• Concept of angles, their measurement, Radian measure and related conversions. • Signs of trigonometric ratios in different quadrants (ASTC rule) • Trigonometric ratios of allied angles (definition and the table of trigonometric ratios of standard allied angles say 900±Θ, 1800±Θ, 2700±Θ and 3600±Θ) • Trigonometric ratios of compound angles (without proof) • Trigonometric ratios of multiple angles • Transformation formulae	4
IV. Differential Calculus And Applications	• Derivatives of continuous functions in an interval (List of formulae) • Rules of differentiation • Successive differentiation (up to second order) • Applications of differentiation	4
V. Integral Calculus And Applications	• List of standard integrals and Basic rules of integration • Evaluation of integrals of simple function and their combination • Methods of integration • Concept of definite integrals • Applications of definite integrals	4
		20

2. STATISTICS AND ANALYTICS - 20 Marks

Topics	Sub Topics	Marks
I. Statistical Data Collection And Types	• Definition of data and classification (qualitative, quantitative discrete and continuous data) • Data collection tools i) Questionnaires. ii) Survey. iii) Interviews. iv) Focus group discussion • Data cleaning	3

II. Summarization of Data	• Descriptive statistics viii) i) Data tabulation (Frequency table) i i) Relative frequency table. • Grouped data i) Bar graph ii) Pie chart iii) Line graph iv) Frequency polygon v) Frequency curve vi) Relative frequency polygon vii) Histograms viii) Box plot • Leaf-stem plot	6
III. Measure of Location And Dispersion	• Determination of central tendencies Range, Mean, Mode and Median for the data • Determination of absolute measures of dispersion for data like range quartile deviation, mean deviation, standard deviation and variance. • Skewness and kurtosis graphs	5
IV. Introduction To Python Programming	• Introduction to PYTHON. • Syntax of PYTHON. • Comments of PYTHON. • Data types of PYTHON. • Variables of PYTHON. • If-else in PYTHON. • Loops in PYTHON. • Arrays and functions in PYTHON.	6
		20

3 . IT SKILLS **- 20 Marks**

Topics	Sub Topics	Marks
I. Introduction to Basics of Coding	1.1 Introduction to computer programming 1.2 Algorithms –With sufficient examples 1.3 Flowcharts – With sufficient examples 1.4 Execute simple programs 1.5 Introduction to Application development 1.6 Simple android application development	4

II. Design And Develop Web Pages	2.1 Basic web technologies ▪ Browser ▪ Web –Server ▪ Client-Server Model ▪ URL ▪ SEO techniques ▪ Domain names and domain name system. 2.2 Creating Web-pages with HTML5 – Static ▪ Introduction, Editors ▪ Tags, Attributes, Elements, Headings ▪ Links, Images, List, Tables, Forms ▪ Formatting, Layout, Iframes. 2.3 Formatting web pages with style sheets(CSS3). ▪ Introduction to CSS ▪ Inline CSS, Internal CSS, Classes andIDs ▪ div, Color, Floating, Positioning ▪ Margins, Padding, Borders ▪ Fonts, Aligning Text, Styling Links 2.4 Creating a web page dynamic usingJavaScript. ▪ Dynamic web page and Introductionto JS ▪ Basic syntax ▪ Functions ▪ Events 2.5 Creating dashboards in websites.	4
III. Business Process Automation / ERP	3.1 Introduction to business processautomation. 3.2 Organization structure and functionscomposition-Properties and applications ▪ Structure ▪ Types ▪ Functional Units 3.3 Workflows ▪ Introduction ▪ Components ▪ Use and use cases 3.4 Enterprise resource planning ▪ History ▪ Evolution ▪ Uses of ERP	4

IV. Introduction To Cloud And IoT Concepts	4.1 Fundamentals of cloud 4.2 Cloud service models ▪ IaaS (Infrastructure-as-a-Service) ▪ PaaS (Platform-as-a-Service) ▪ SaaS (Software-as-a-Service) 4.3 Cloud deployment types ▪ Public, ▪ Private, ▪ Hybrid ▪ Community Cloud 4.4 Cloud services: ▪ Google Drive - file storage and synchronization service developed by Google; ▪ Google docs- bring your documents to life with smart editing and styling tools to help you easily format text and paragraphs; ▪ Google Co-lab (Usage of Jupyter Notebook): *Colab* notebooks allow you to combine executable code and rich text in a single document, along with images, HTML, LaTeX, and more. ▪ Google App Engine: Google App Engine is a Platform as a Service and cloud computing platform for developing and hosting web applications in Google-managed data centers. Applications are sandboxed and run acrossmultiple servers. 4.5 Working of IoT and IoT components (Only brief introduction and demonstrationthrough videos) 4.6 Explain concept of Internet of Things with examples ▪ Smart home ▪ Smart city ▪ Smart farming	4

V. Cyber security And Safety	5.1 Introduction to Cyber security and cybersafety. ▪ Brief awareness on cyber safetymeasures ▪ Identification of basic security issues inmobile phones and personal computers ▪ Installation of Antivirus software ▪ Firewall concepts ▪ Browser settings ▪ Importance of privacy and Passwordpolicy (Best practices). 5.2 Common threats - Demonstration ▪ Phishing ▪ DoS attack ▪ Man in the middle attack ▪ Eavesdropping ▪ Spamming	4
		20

4 . FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING - 20 Marks

Topics	Sub Topics	Marks
I. Electrical Safety	1. Electrical Symbols 2. Electrical safety • Identify Various types of safety signsand what they mean • Demonstrate and practice use of PPE • Demonstrate how to free a person from electrocution • Administer appropriate first aid to victims, bandaging, heart attack, CPR, etc. • Fire safety, causes and precautionaryy activities. • Use of appropriate fire extinguisherson different types of fires. • Demonstrate rescue techniques applied during fire hazard, correctmethod to move injured people during emergency • Inform relevant authority about any abnormal situation 1.1 Earthing: Types	2

II. Electrical Fundamentals	1. Describe the sources of electrical energy. 2. Electrical current, voltage, emf, potential difference, resistance with their SI units. 3. Mention the meters used tomeasure different electrical quantities. Identification Measuring devices • Ammeter • Voltmeter • Wattmeter • Ohmmeter • Digital Multimeter • Megger • Tong tester 4. Explain supply systems like AC, DC. • Relationship between V, I and R. (Ohms law) • Behavior of V, I in Series andParallel DC circuits. • Describe open circuit, close circuit and short circuit • Equation to find the effective Resistances connected in series • Equation to find effective Resistancesconnected in parallel • Resistances connected series andparallel combinations • AC sine wave**: S**inusoidal voltage, current, amplitude, time-period, cycle, frequency, phase, phase difference, and their units. • Electrical work, power and powerfactor, SI units, mention the meters used to measure them. 5. Electrical energy • SI units • Mention the meters used tomeasure them • Single phase and Three phasesupply.	5

III. Protective Devices And Wiring Circuits	1. Protective Devices • Necessity of Protective Devices • Various Protective devicesand their functions •fuse wire, •Glass cartridge fuse • HRC fuse • Kit-kat fuse • MCB • MCCB • RCCB • ELCB • Relay • Different types of electriciantools and their function. • Describe various wiring tools. • State procedure of care andmaintenance of wiring tools. 1. Describe different types of wiring systems. • Surface conduit • concealed conduit • PVC casing capping 2. Wiring systems and their applications. 3. Describe the types of wires, cablesused for different current and voltageratings.	3
IV. Electrical Machines and Batteries and UPS	1. Transformer • working principle • Transformation ratio • Types and applications withtheir ratings 2. Induction motor • Single phase and three phaseInduction motor. • Necessity of starters. • Describe DOL AND STAR-DELTA starters. 3. What are different causes and remedies for a failure of starter and induction motor. 4. Battery • Types of batteries (Lead acidbattery, lithium, sealed maintenance free (SMF) battery,Modular battery). • Selection criteria of batteries fordifferent applications. • Ampere-Hour Capacity. • Efficiency 5. UPS • List the types and applications • Selection criteria of UPS • Sizing of UPS	5

V. Introduction to Electronic Devices and Digital Electronics	1. Compare Conductors, insulators and semiconductors with examples. 2. Identification of types and values of resistors-color codes. 3. PN junction diode • Symbol • Characteristics • Diode as switch. • Types of diodes and ratings • Applications 4. Rectifier • Need for AC to DC conversion • Bridge rectifier with and without C filter, • Rectifier IC. 5. Transistor (BJT) • Symbol • Structure • Working principle • Comparison of analog and digital signal • Digital systems, examples. • Binary numbers, Boolean identities and laws. • Digital system building blocks: Basic logic gates, symbols and truth tables. • IC-Definition and advantages. 6. Sensors • Concept • Types: Temperature, Pressure, Water, Light, Sound, Smoke, proximity Sensors, Flow, humidity, voltage, vibration, IR (Principle/working, ratings/ specifications, cost, and applications) 7. Actuators • Concept • Types and applications. • Relay as an actuator 8. Microcontroller • As a programmable device and list of real-world applications. • PLC and Their applications.	5
		20

5. PROJECT MANAGEMENT SKILLS -20 Marks

Topics	Sub Topics	Marks
I. Introduction	• Meaning of Project • Features of a Project • Types of Projects • Benefits of Project Management • Obstacles in Project Management • Project Management as Profession • Project Manager and His Role • Project Consultants • What is Operation? • Difference between Project and Operation. • What is "Process" in Project Management and Process Groups? • What is Scope? Difference between Project Group Objectives and Project Scope.	4
II. Project Administration	• Essentials of Project Administration • Project Team • Project Design • Work Breakdown Structure (WBS) • Project Execution Plan (PEP) • Contracting Plan • Work Packing Plan • Organisation Plan • Systems and Procedure Plan • Project Procedure Manual • Project Diary • Project Execution System • Project Direction • Communication in a Project • Project Co-ordination • Pre-requisites for Successful Project Implementation	4

III. Project Life cycle	• Phases of Project Life Cycle • Project Management Life Cycle (General) • Project Planning • Project Execution • Project Closure • Project Risks • Types of Risks: Illustrations • Risk Assessment Techniques with Illustrations • Project Cost Risk Analysis • Estimating Time and Cost Overrun Risks • Organization/Procedural/Systemic Reasonsfor Project Cost Overruns • Time Overruns	4
IV. Project Planning, Scheduling and Monitoring	• Nature of Project Planning • Need for Project Planning • Functions of Project Planning • Steps in Project Planning • Project Planning Structure • Project Objectives and Policies • Tools of Project Planning • Project Scheduling • Time Monitoring Efforts • Bounding Schedules • Scheduling to Match Availability of Manpower • Scheduling to Match Release of Funds • Problems in Scheduling Real-life Projects • Introduction • Situation Analysis and Problem Definition • Setting Goals and Objectives • Generating Structures and Strategies • Implementation • What is Project Evaluation? • Why is Project Evaluation Important? • What are the Challenges in Monitoring and Evaluation?	4

V. Project Control, Review and Audit	• Projected Control Purposes • Problems of Project Control • Gantt Charts • Milestone Charts • Critical Path Method (CPM) • Construction of a Network • Network Technique in Project Scheduling • Crashing Project Duration through Network • Project Review • Initial Review • Post Audit • Performance Evaluation • Abandonment Analysis • Objectives of Project Audit • Functions of Project Auditor • Project Audit Programme • Difficulties in Establishing Audit Purpose and Scope • Digital Technology trends in Project management • Cloud Technology, IoT, AR and VR applications in Project management, Smart Cities	4
		20