JAIRAAM SKILL DEVELOPMENT CENTRE

(Run by Sri Jairaam Trust)

(Approved by IECD – Bharathidasan University)

Functioning at SRI RAAJA RAAJAN COLLEGE OF ENGINEERING & TECHNOLOGY

Amaravathipudur, Karaikudi-630301

Sri Jairaam Trust

Karaikudi

SYLLABUS

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY ★ KARAIKUDI

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JAIRAAM SKILL DEVELOPMENT CENTRE

Amaravathipudur, Karaikudi-630 301.

(Run by Sri Jairaam Trust and Courses approved by Bharathidasan University)

Minutes of the meeting of the Board of Studies for the **Short-term Skill Training courses** to be offered by the **Jairaam Skill Development Centre, Amaravathipudur** with the approval of **Bharathidasan University, Tiruchirappalli** was held on 6th February 2021 at 10:30 a.m in the premises of **Sri Raaja Raajan College of Engineering & Technology**, Amaravathipudur, Karaikudi-630301.

Members Present:

1. **Prof. E. Ramganesh**
   Director
   Institute for Entrepreneurship and Career Development (IECD)
   Bharathidasan University
   Khajamalai Campus, Tiruchirappalli - 620 023
   : Chairperson / Convener

2. **Dr. M. Gurupandi**
   Assistant Professor
   Department of Commerce
   Alagappa University, Karaikudi
   : Member
   (Expert – Commerce & Management)

3. **Dr. C. Balakrishnan**
   Assistant Professor
   Alagappa Institute of Skill Development
   Alagappa University, Karaikudi
   : Member
   (Expert – IT&ITeS)

4. **Mr. KP. Karthilingam**
   Assistant professor
   Department of Tourism & Hotel Management
   Alagappa University, Karaikudi
   : Member
   (Expert – Hotel & Tourism)

5. **Dr. K. Velmanirajan**
   Principal, VSVN Govt.Aided Polytechnic,
   Virudhunagar.
   : Member
   (Expert – Mechanical Engineering)

6. **Dr. K. Arumugam**
   Assistant Professor (senior grade), Department of Mechanical Engineering, Anna University, University College of Engineering, Ramanathapuram.
   : Member
   (Expert – Mechanical Engineering)

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7. **Dr. M. Balasubramanian**
Assistant Professor, Department of Mechanical Engineering, Anna University, University College of Engineering, Ramanathapuram.
: Member
(Expert – Mechanical Engineering)

8. **Dr. G. Mahesh**
Assistant Professor
Alagappa Institute of Skill Development
Alagappa University, Karaikudi
: Member
(Expert – Fashion Technology)

9. **Dr. M.S.Kanagathara**
Department of Fine Arts
Alagappa University, Karaikudi
: Member
(Expert – Fine Arts)

10. **Dr. V. Karuppuraj**
Assistant Professor in Organic Agricultural
Sethu Bhaskara Agricultural College and Research Foundation, Karaikudi
: Member
(Expert – Organic Agricultural)

11. **Mr. N. Navakodi**
Asst. Manager Electrical,
Ponni Sugars Erode Ltd., Pallipalayam, Erode-638007
: Member
(Expert – Electrical & Electronics)

12. **Mr. SP. Alaguraman**
Skill Trainer, EIC Hub
Alagappa University, Karaikudi
: Member
(Expert – Electrical & Electronics)

13. **Mr. S. Suresh**
MEE CADD Centre, Karaikudi
: Member
(Expert – Civil Engineering)

14. **Mr. R. Dinesh Babu**
L&D Construction, Bengaluru
: Member
(Expert – Civil Engineering)

15. **Mr. S. Arockia George**
ARO NET ZONE, Karaikudi
: Member
(Expert – Civil Engineering)

16. **Mr. Saravanakumar**
CEO, The Future Technologies
: Member
(Expert–Electronics & Communications)

17. **Mr. L.M. Lakshmanan**
Moon Star CCTV Cameras, Karaikudi
: Member
(Expert–Electronics & Communications)

18. **Prof. T. Mari**
Industrial Safety Engineer, Madurai
: Member
(Expert–Industrial Safety)

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19. **Er. P. Chandrasekar**
Civil Engineer, Madurai
: Member
(Expert–Civil Engineering)

20. **Mr. Saravanan**
Service Engineer, Vasantha Radha Computers
Gandhi Veethi, Sivagangai
: Member
(Expert–Electronics & Communications)

The Chairperson of the Board of Studies welcomed the members for the Board of Studies meeting and illustrated the agenda and courses to be considered for framing the regulation and syllabus.

After detailed discussion, the Board has decided the following:

1. It is resolved to approve and recommend the adoption of the regulations, programme structure and Syllabi of the following short-term skill training programmes which are to be offered by the Jairaam Skill Development Centre, Amaravathipudur, Karaikudi with the approval of IECD, Bharathidasan University, Tiruchirappalli:

Short-Term Programmes

1. Hardware & Networking
2. Electrical AutoCAD
3. Carpentry and Mason Work
4. Bee Keeping
5. T.V service and Maintenance Training

Certificate Programmes

1. Mobile App Development and Web Design
2. Mobile Servicing (Android & IPhone) Training
3. CCTV Installation & Maintenance Training
4. Electrician and Plumbing
5. Electrical Service and Maintenance
6. Approval Drawing or Blueprint (AutoCAD)
7. Architectural Design
8. Estimation and Quantity Surveying
9. CNC Operator
10. Two-Wheeler & Four Wheeler Servicing
11. AC and Fridge Technician

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12. Industrial Robotics and Material
13. Handling Systems
14. Electric-Vehicle Service and Maintenance
15. Fish Culture Management
16. Poultry Keeping
17. Bharatanatiyam
18. Carnatic Vocal
19. Fashion Technology
20. GST
21. Welding

Diploma Programmes:

1. Cyber Security.
2. Artificial Intelligence & Machine Learning
3. Internet of Things (IoT)
4. Computer Applications
5. Montessori Training
6. Guidance and Counselling
7. Food Production and Beverage Services

Prof. E. Ramganesh

Dr. M. Gurupandi

Dr. C. Balakrishnan

Mr. KP. Karthilingam

Dr. K. Velmanirajan

Dr. K. Arumugam
Through video conference

Dr. M. Balasubramanian
Through video conference

Dr. G. Mahesh

Dr. M.S.Kanagathara

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Dr. V. Karuppuraj
through video conferencing

Mr. N. Navakodi
through video conferencing

Mr. SP. Alaguraman

Mr. S. Suresh
through video conferencing

Mr. R. Dinesh Babu

Mr. S. Arockia George
through vide conferencing

Mr. Saravanakumar
through video conferencing

Mr. L.M. Lakshmanan

Dr.T.Mari

Er. P. Chandrasekar

Mr. Saravanan

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Jairaam Skill Development Centre

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Short-Term Programmes

1. Hardware & Networking
2. Electrical AutoCAD
3. Carpentary and Mason Work
4. Bee Keeping
5. T.V service and Maintanance Training

Certificate Programmes

1. Mobile App Development and Web Design
2. Mobile Servicing (Android & IPhone) Training
3. CCTV Installation & Maintanance Training
4. Electrician and Plumbing
5. Electrical Service and Maintanance
6. Approval Drawing & Blue Print (AutoCAD)
7. Architectural Design
8. Estimation and Quantity Surveying
9. CNC Operator
10. Two Wheeler & Four Wheeler Servicing
11. AC and Fridge Technician
12. Industrial Robotics and Material Handling Systems
13. Electric-Vehicle Service and Maintanance
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Diploma Programmes

1. Cyber Security
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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
CS01	Course in Hardware & Networking	Theory	25	75	100
LAB01	Hardwsre & Networking Lab	Practical	50	150	200
				Total	**300**

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CS 01 SHORT TERM COURSE IN HARDWARE & NETWORKING

Network Specialist

Course Contents – Theory

Course Objectives

To train the officials to acquire basic knowledge in computer **hardware** and peripherals for installation, PC assembly, trouble shooting and maintenance including system management and its backup and to undertake disaster prevention, a basic knowledge of TCP/IP **networks** work group, internet and intranet.

UNIT I

Introduction about Computer, Basics of computer, Organization of computer. Software and hardware, Input/output devices.

UNIT II

Basic networking concepts, Network technologies: LAN, WAN, MAN, Networking Model The OSI model, TCP/ IP Model, Network adapters. Introducing protocols.

UNIT III

Introduction to various networking devices: Routers., Switches,.Modems.Hubs etc..Wired and Wireless technology.

UNIT IV

Opening the PC and identification.-Study of different blocks -Assembling and disassembling.

UNIT V

Network basic and configuration: Setting IP addresses- Sharing files and folders. -Network troubleshooting - PING test, ipconfig etc.

Course Duration – 40 hours (Theory : 25 Hours Lab – 15 Hours)

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LAB 01 Hardware & Networking Laboratory

Hardware Engineer

Course Contents – Practical

Course Objectives

- Understand basic concept & Structure of Computer Hardware & Networking Components.
- Building and assembling a desktop.
- Apply their knowledge about network and cables.
- Integrate the PCs into Local Area Network & re-install OS & various clipboard applications.

Lab Experiments

1.Identify the study of Computers and the Components.

2.Study the Building and Assembling a Desktop PC

3. Installing the Operating System & Application System

4. Constructing UTP Cables

5. Workgroup based network using windows 7 Professional OS

6. Study about the commands PING ipconfig and Trace

Learning Outcomes

After Studying this course, you should be able to

- Understand what all the terms highlighted in hold in the text mean.
- Understand the fundamental hardware components that make up a computer's hardware and the role of each of these components.
- Understand the difference between an Operating System and an application program, and what each is used for in a Computer
- Describe some examples of computers and state the effect that the use of computer technology has on some practices.

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Short term course Programmes

Course Content

Electrical AutoCad

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Short term course in Electrical AutoCad

Job Role	**Electrical AutoCad**
Sector	**Power Sector Jobs**
NSQF level	**4**
QP Code	JSD/EE/001
Total number of hours and break up	80 Hrs. (T: 30 Hrs., P: 50 Hrs)
Occupational Standards	1. It helps control designers to increase design efficiency and productivity. 2. It helps marketers to get their products to market quickly and at a reduced cost. 3. The error-checking capability of the software helps designers to perform real-time diagnostics and eliminate design errors. 4. The software includes robust automated reporting tools that help share precise and accurate data with downstream users. 5. It helps in active collaboration of the electrical and mechanical team of the organization.
Expected Learning outcome	After completing this programme, participants will be able to: 1. It helps control designers to increase design efficiency and productivity. 2. It helps marketers to get their products to market quickly and at a reduced cost. 3. The error-checking capability of the software helps designers to perform real-time diagnostics and eliminate design errors. 4. The software includes robust automated reporting tools that help share precise and accurate data with downstream users. 5. It helps in active collaboration of the electrical and mechanical team of the organization.
Skills focused	• Introduction to AutoCAD Electrical • Learn to use drawing tools • Use of hatch and gradient • Learn to use electrical schematics • Understand electrical panels • Electrical plan project
Course approved by	Bharathidasan University
Placement areas	• Automotive Industries • Construction Industries

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	• Oil & Gas Industries • Power Generation Industries

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSD/EE/001/01	Electrical Auto Cad	Theory	25	75	100
JSD/EE/001/02	Practical on Electrical Auto Cad	Practical	25	75	100
				Total	200

Certificate Programme in Electrical Autocad

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EE/ 001/01	**Electrical Autocad**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Symbols and Schematic Drawing in AutoCAD** Introduction-Basic CAD interface-Basic command for AutoCAD drawing-Draw general symbols used in electrical field-Symbols of generator, transformer, AC and DC motor and their starter, different switches, measuring instrument and various electrical instrument-Draw general symbols used in electronics field Symbols of resistor, capacitor, inductor, diodes and various electronics switches	**10**
II	**Electrical Circuit Diagrams** Introduction-Draw combinational circuit-Series and parallel circuit of resistor, inductor, capacitor and its combination-Draw house wiring diagram-One switch for one fan, two way switch for one lamp (staircase wiring), complete wiring of one room, wiring of a house. - Draw different parts of electrical machine-Winding diagram, pole, yoke etc.	**10**
III	**Electronics Circuit Diagrams & Panel Layout** Draw different electronics circuit -Prepare lighting panel layout -Prepare house wiring diagram – Types of panels – Substation components	**10**
	Total	**30**

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Certificate Programme in Electrical Autocad

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
JSD/EE/001/02	Practical on Electrical Autocad	Practical	
Exercise No	Modules (Practical)	P (Hrs.)	H (Hrs.)
1	Draw general electrical symbols	10	-
2	Draw general electronics symbols	5	-
3	Draw DC and AC machine parts.	10	-
4	Draw combinational circuit of R,L,C component	5	-
5	Draw house wiring diagram	10	-
6	Draw basic electronics circuits	5	-
7	Draw different types of rectifier	5	-
	Total	50	-

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Certificate course Programmes

Course Content

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Short term course on carpentry and Mason work

Course Contents – Theory

Course Code	Course Title	Theory / Practical
CE1104	Short term course on carpentry and mason work	Theory
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	INTRODUCTION Drawing Instruments and their uses-Methods of Division of line segment-Drawing of Geometrical Figures-Lettering and Numbering as per BIS SP46-2003-Method of presentation of Engineering Drawing.	15
II	Carpentry work Preparation of door frame and door shutter-Layout and making of partition-Fixing hard board or any insulation board-Timbering of trench-	10
III	Carpentry work Training Use of wood working machines including circular saw machine, surface planer and thicknesser machine / jointer planning machine, mortising (chain and hollow chisel) tenoing machines,Drilling Machin, spindle moulder m/c, wood turning lathe, universal wood working machine.	15
IV	Mason work Construction of floor-Construction of stair cases-Construction of louvers-Construction of sky and latern roof light-Making roof truss and construction. Construction of shuttering.	10

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V	Mason work training Introduction to safety measures-PCC Bed and Concrete Foundation-Introduction to laying of damp proof course-Identification, selection and practical uses of masonry tools-Types of brick masonry, construction, bonds and specificationsKnowledge of cross junction on English bond	10
	Total	60

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Short term course on Carpentry and Mason work

Job Role	**Carpenter, Mason**
Sector	**Construction field sector**
NSQF level	**5**
QP Code	CE1104
Total number of hours and break up	**100** Hrs. (T: **40** Hrs., P: **60** Hrs.)*
Occupational Standards	1. Classify basic concepts, techniques and application of carpentry and Mason work. 2. Understand how to prepare a detailed drawing for a residential buildings. 3. Designing the preparation of bar bending schedule for reinforcement works. 4. Ability to carry over their own project.
Expected Learning outcome	After completing this course, participants will be able to: 1. Approval drawing for a Residential building. 2. Design and Prepare bar bending schedule for reinforcement works. 3. Design and preparation of DTCP Approval.
Skills focused	• Understand the detailed and general specifications for all the buildings like residential and commercial buildings. • Understand how to design the requirements for constructions. • Coordinate with seniors and other team members
Course approved by	Bharathidasan University
Placement areas	Construction work Site Engineer Masonry work Carpentry work

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
CE1104	Short term course on carpentry and Mason work	Theory	25	75	100
				Total	100

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Short-term Skill Training Programs

Course Content

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Short Term course in Bee keeping

Job Role	**Beekeeper**
Sector	**Agriculture**
NSQF level	**4**
QP Code	**QP BK/9121**
Total number of hours and break up	**40** Hrs. (P: **30** Hrs., H: **10** Hrs.)*
Occupational Standards	1. Identification of honey bee species 2. Life cycle of honey bees 3. Assembling a beehive 4. Beekeeping equipment's 5. Bee colony inspection 6. Diseases and pests of honeybee 7. Harvest a honeycomb 8. Extraction of honey from honeycomb 9. Quality testing of honey 10. Beeswax extraction and purification
Expected Learning outcome	After completing this programmer, participants will be able to: • Handling honey bees • Assembling a beehive • Handling beekeeping equipment • Bee colony inspection • Harvesting honey from honeycomb
Skills focused	- planning and goal setting skills - marketing management skills - Entrepreneurial Skills
Course approved by	Bharathidasan University
Placement areas	• Entrepreneur / Self-employed

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
112121	Beekeeping practices	Practical	50	150	200
				Total	**200**

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Short Term course in Bee keeping

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
261102	**Beekeeping practices**	**Practical**	
Exercise No	**Modules (Practical)**	**P (Hrs.)**	**H (Hrs.)**
1	Identification of honey bee species	10	2
2	Life cycle of honey bees		
3	Assembling a beehive	5	2
4	Beekeeping equipment's		
5	Bee colony inspection	5	2
6	Diseases and pests of honeybee		
7	Harvest a honeycomb	5	2
8	Extraction of honey from honeycomb		
9	Quality testing of honey	5	2
10	Beeswax extraction and purification		
	Total	**30**	**10**

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Short Term Course Programme

Course Content

ADVANCED TV SERVICE & MAINTENANCE (LED VIDEO WALL)

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Short Term Course in Advanced TV Service & Maintenance (LED Video Wall) Training

TV REPAIR TECHNICIAN

Job Role	**TV Repair Technician**
Sector	**ELECTRONICS**
NSQF level	**4**
QP Code	**JSD /EC/001**
Total number of hours and break up	**80** Hrs. (T: **30** Hrs., P: **50** Hrs.)*
Occupational Standards	1. Engage with customer for service 2. Install the television set 3. Repair dysfunctional CRT TV set 4.Repair dysfunctional Flat Panel Display (FPD) TV set 5. Interact with colleagues
Expected Learning outcome	After completing this programme, participants will be able to: • Interact with the customer in order to identify and understand the problem in the television set • Ensure customer satisfaction • Identify dysfunctional components through visual inspection and by use of multi-meter • Read and Comprehend signs, labels and warning • Communicate effectively • Follow behavior etiquettes while interacting with others • Establishing good working relationships with colleagues within and outside the department by coordinating
Course approved by	Bharathidasan University
Placement areas	• Government sector • Electronics Service Technician • Self-employed • College/Institution • Management(Marriage function) • Advertisement Agencies • TV Channels

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JAD/EC/001/01	Mobile phone service & Maintenance	Theory	25	75	100
JAD/EC/001/01	Practical on Installation and service various fault in mobile phone tools	Practical	25	75	100
				Total	**200**

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Short Term Course in TV Service & Maintenance Training
TV REPAIR TECHNICIAN
Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EC/001/01	ADVANCED TV SERVICE & MAINTENANCE (LED VIDEO WALL)	Theory
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**UNIT :Basic Electronics:** • Use of Multimeter, Frequency Tester, Oscilloscope • AC and DC supply testing with precautions • Using SMD Rework Station , Solder Iron and other tools,Replacement of Components	5
II	**Power Board-EMI Protection & Power Factor Correction:** • Investigation of Circuit, Active PFC testing • EMI Filter and Hazard Protection Circuit testing **Power Board-Primary Rectification & PWM Oscillator:** • Testing of Primary Rectifier circuit layout • Start-up & Run PWM circuit testing,Testing of PWM controller IC	5
III	**Power Board-Secondary Rectification & FB:** • Investigation of Circuit • Testing of Secondary Rectifier circuit , Sampling circuit • Testing of Error Detection Circuit, Regulator **Service Manual & LCD Test Tool:** • Disassembly of LED TV unit • Use of LCD Screen panel testing tool	5
IV	**Backlight Circuit:** • Testing Backlight Drive IC • Testing Backlight Boost circuit **Logic Board – Power Regulators:** • Identification and testing of step-down Regulators on main logic boar	5
V	**Logic Board – Dead unit, No Display & Connectivity Solution:** • Power Logic Sequence- For Dead LED TV • Display Sequence –For Display Problem in LED TV • Testing of RTS Crystals **LCD Screen panel Repairs:** • LCD panel solution for Solarisation, panel line, negative picture **T-Con board repairs & software:** • Testing of T-Con board for Double image, half picture • Mini-LVDS signal waveform testing using oscilloscope • CVP, CKV,CKVB, STV, STVP waveform testing usig oscilloscope	10
		Total 30

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Short Term Course in ADVANCED TV SERVICE & MAINTENANCE (LED VIDEO WALL)

Course Contents – Practical

Course Code	Course Title	Theory / Practical
JSD/EC/001/02	ADVANCED TV SERVICE & MAINTENANCE (LED VIDEO WALL)	Practical
Exercise No	**Modules (Practical)**	**P / (Hrs.)**
1	Basic electronics and circuit knowledge specially with respect to Television set	10
2	Reassemble the Television set and test its functioning	10
4	Identify the reason for fault on the LED/ LCD TV set and fix it.	
5	Models of different appliances and their common and distinguishing features.	10
6	Reassemble and Reinstall the Television set and test its functioning	
7	Basic troubleshooting knowledge with respect to LED/ LCD TV set	10
8	Concealed wiring and make connection of power supply, set top boxes, home theatre systems to the TV set	
9	Precautions to be taken while handling field calls and dealing with customers.	10
10	Assembling and dismantling of Video wall & operation of Processor.	
	Total	**50**

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CERTIFICATE COURSE IN MOBILE APP & WEB DEVELOPMENT

Job Role	Web design / Dynamic web Content Creator / Designing Template,, Technical support(Desktop), Assistant Programming Administrator, IT Web Support Staff,WebDesigner, Graphics Designer, Mobile app designer, Mobile app dataLase
Sector	**IT-ITeS**
NSQF level	**5**
QP Code	**QP SSC/Q0503 Web Analyst**
Total number of hours and break up	**100** Hrs. (T: **50**Hrs., P: **50** Hrs.)*
Occupational Standards	SSC/N9001-V0.1 (Manage your work to meet requirements) SSC/N9002-V0.1 (Work effectively with colleagues) SSC/N9003-V0.1 (Maintain a healthy, safe and secure working enviro) SSC/N9004-V0.1 (Provide data/information in standard formats) SSC/N9005-V0.1 (Develop your knowledge, skills and competence) SSC/N0501-V0.1 (Contribute to the design of software products and) SSC/N0503-V0.1 (Develop media content and graphic designs for soft)
Expected Learning outcome	After completing this programme, participants will be able to: • Various parameters like familiarity with the website codings, handling of website • learn basic concepts of website and internet skills.. • Learn to write HTML, CSS, JAVASCRIPT queries for website definition and manipulation. • Understand basic concepts of data communications and transmission modes & methods. • Know the importance of effective communication. • Learn the basic communication skills to enhance competencies
Skills focused	➢ Requirements of basic computer operations ➢ Office related works ➢ Document maintain ➢ Protecting Unauthorized access ➢ Installation of security Tools ➢ Audit security incidents ➢ Entrepreneurial Skills
Course approved by	Bharathidasan University
Placement areas	➢ Banks ➢ Government IT sector & Mobile sector ➢ Web Admin & Web design ➢ Self-employed

* T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI 27

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
SSC/Q0503	Principles of computer web/app development	Theory	25	75	100
SSC/Q0503	Create and Installation of various web application tools	Practical	50	150	200
				Total	**300**

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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CERTIFICATE COURSE IN MOBILE APP & WEB DEVELOPMENT

Course Contents – Theory

Course Code	Course Title	Theory / Practical
SSC/Q0503	**Principles of Website/App Development**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Web Fundamental & Web Maintenance & Information Security** **Web Fundamental** :Various parameters like familiarity with the computers, handling of web-Interfacing basic parts of computer. **Web Maintenance Information Security** :General Maintenance of web frontend backend etc - Configuration of localhost servers, XAMPP & WAMP. **Troubleshooting websites**: Identifying web problems, POST error codes, load failures and peripheral failures. Internet Technology and Introduction to Multimedia	**15**
II	**Unit Title: Concepts of Javascripts** Basics of Javascripts, Advantages of Javascripts. Data Base Operations: Operations: Creating, dropping, manipulating table structure. Manipulation of Data, Design and Development of Applications using HTML: Creation of Templates, animation, graphics, Creation of Forms – text box, labels, list box, combo box, buttons and controls, Generation of Reports , Web browsing to a form , Web Page reports -Design and Development of Applications using MySQL :Creation of Tables, Queries using MySQL.	**15**
III	**Unit Title: Android Communication and Networking** Introduction To Android Studio, Android Creating Applications And Activities, Creating User Interfaces And Intents, Broadcast Receivers, Adapters And The Internet, Files, Saving State, And Preference, Simple Database And Project- Creating Android VAS Application, Creating Applications for Android Tablets, Testing and Publishing Android Applications	**20**
	Total	**50**

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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CERTIFICATE COURSE IN MOBILE APP/WEB DEVELOPMENT

Course Contents – Practical

Course Code	Course Title	Theory / Practical
SSC/Q0503	Create and Installation of various application tools	**Practical**
Exercise No	**Modules (Practical)**	**P (Hrs.)**
1	Creating custom card component using Dart	10
2	Creating UI basics , using Flutter	
3	Creating a Server side dart program to fetch data	10
4	Creating DOM elements using Dart	
5	Web Definition Commands, Web Manipulation Commands for inserting, deleting, updating and retrieving Tables and Transaction Control statements	10
6	Create the student database with the following database and do the following using Programming: assessment(reg_no,name, mark1, mark2, mark3, dept, address)	
7	Create the Android app Company database with android studio.	10
8	Create a Flutter android data exchange model	
9	➢ Introduction to Soft Skills ➢ Coding Skills ➢ Android App presentation Skills ➢ Time Management Skills	10
	Total	**50**

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task

SRI RAAJAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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Certificate Course Programme

Course Content

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AMARAVATHIPUDUR, KARAIKUDI-630 301.

Jairaam Skill Development Centre
(Courses run by Sri Jairaam Trust)
(Courses approved by Bharathidasan University)

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Certificate in Mobile Servicing (Android & I-phone) and Training

Service Technician

Job Role	**Mobile Phone Hardware Repair Technician**
Sector	**ELECTRONICS**
NSQF level	**4**
QP Code	**JSD/EC/003**
Total number of hours and break up	**100** Hrs. (T: **40** Hrs., P: **60** Hrs.)*
Occupational Standards	1.Interact with customer and perform front end repair 2.Repair and rectify the faults in mobile phone 3.Interact with other employees 4.Maintain safe and secure work environment
Expected Learning outcome	After completing this programme, participants will be able to: • Receiving procedure of the faulty Mobile Phone • Repair the Hardware and software of the Faulty Mobile Phone • Testing the Repaired Mobile phone • Co-ordinating with Colleagues :Understanding the procedures to Co- • ordinate with colleagues based on the Company Policy. Safety Procedures : Understanding to maintain the safety Procedures to Maintain the safe working environment as per the standard.
Course approved by	Bharathidasan University
Placement areas	• Government sector • Mobile Developer • Mobile Service Companies • Self-employed

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Course Outline

Course Code	Paper Title	Theory / Practical	Interna l Marks	External Marks	Tota l
JSD/EC/003/01	Mobile Servicing (Android & I-phone) Training	Theory	25	75	100
JSD/EC/003/02	Practical on Service and Installation various mobile phone tools	Practical	25	75	100
				Total	**200**

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Certificate in Mobile Servicing (Android & I-phone) Training

Service Technician

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EC /003/01	**MOBILE SERVICING (ANDROID & I-PHONE) TRAINING**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Basics Tools and Equipment:** • Study of various Tools and Equipment used in mobile phone • Repair using a multimeter • Identify component and their function.	**10**
II	**Unit Title: Hardware Repair:** • Study of PCB (printed circuit board) design • Soldiering and and desoldiering of component • Replacing the Display , Speaker, MIC , SIM Slate	**5**
III	**Unit Title: Software Repair:** • Detailed study of various faults arising due to corrupt software • Introduction of various flasher boxes and software • Flashing of various brands of handsets • Removing virus from infected phones, • Unlocking of handsets through codes and/or software • Use of various secret codes.	**5**
IV	**Unit Title: Advanced Troubleshooting:** • Fault finding, troubleshooting and repairing of various faults • Water damaged repair techniques, Circuit tracing, jumper techniques and solutions • Use of internet for troubleshooting faults, Advanced troubleshooting techniques.	**10**
V	**Unit Title: Additional Learning:** • Reading & writing skills, Communication skills, Time management skills, Team skills, Safety & Security. • Guidance to start and manage your own mobile repair center, • Dealing with customers and distributors, Marketing your mobile phone repair business.	**10**
	Total	**40**

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SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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Certificate in Mobile Servicing (Android & I-phone) Training
Service Technician

Course Contents – Practical

Course Code	Course Title	Theory / Practical
JSD/EC/003/02	**SERVICE AND INSTALLATION VARIOUS MOBILE PHONE TOOLS – Lab**	**Practical**
Exercise No	**Modules (Practical)**	**P / (Hrs.)**
1	PCB Design	10
2	Soldiering and desoldiering various components	10
3	Fault finding trouble shooting and repairing of various fault, H/W and S/W Problems	10
4	Water damage repair techniques	10
5	Replacing (or) changing • Hardware ➢ Screen display ➢ MIC ➢ Speaker ➢ Charge Pin ➢ SIM card slate • SOFTWARE: ➢ Installing software ➢ Flashing of various brand handset ➢ Removing various ➢ Use of various secret codes.	20
	Total	**60**

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Certificate Course Programme

Course Content

CCTV Installation & GPS Tracking Training

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Jairaam Skill Development Centre
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SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Certificate in CCTV Installation & GPS Tracking Training

CCTV Installer

Job Role	**CCTV Installation Technician**
Sector	**IT Hardware**
NSQF level	**4**
QP Code	**JSD/EC/002**
Total number of hours and break up	**100** Hrs. (T: **40** Hrs., P: **60** Hrs.)*
Occupational Standards	1.Interact with customer and perform front end repair 2.Repair and rectify the faults in mobile phone 3. Interact with other employees 4. Maintain safe and secure work environment
Expected Learning outcome	After completing this programme, participants will be able to: • Interact with the customer in order to identify and understand their requirements. • Ensure customer satisfaction • Install and Repair dysfunctional system. • Identify dysfunctional components through visual inspection and by use of multi meter • Follow behaviour etiquettes while interacting with others • Establishing good working relationships with colleagues within and outside the department by coordinating
Course approved by	Bharathidasan University
Placement areas	• Government sector • Service Tecnician • Security Companies • Self-employed

* T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSD/EC/002/01	CCTV Installation & GPS Tracking theory	Theory	25	75	100
JSD/EC/002/02	Practical on Inspect and Installation CCTV & GPS Tracking of security tools	Practical	25	75	100
				Total	**200**

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Certificate in CCTV Installation & GPS Tracking Training

CCTV Installer
Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EC /002/01	**CCTV INSTALLATION & GPS TRACKING THEORY**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Hardware Basics:** List types of cameras used by CCTV systems, Describe security camera types, mounts, and lighting, Describe bullet-type surveillance cameras, Explain infrared camera technology , Security cameras, Bullet , Infrared, Dome Pan-Tilt-Zoom, Hidden & IP , Miniature,	**10**
II	**Unit Title Recorders & Mounts, Enclosures & housing** Different DVR systems, types, Function and operation of DVR, Configuration of DVR system, Accessing, setting and troubleshooting basic DVR problems, Explain premises restoration purpose and methods ,Compare different types of camera mounts , Explain optimum camera beam angles, Use of Housing	**5**
III	**Unit Title: Video & Audio, Cabling Systems:** Compare types of video monitors and displays used in CCTV, Explain video amplifier usage in security systems Describe and name common cable connectors and which cable types they apply to , Explain the use of cabling standards	**5**
IV	**Unit Title: Computer Network systems:** Explain how to draw a block diagram of a residential computer network and explain the basic uses, Explain the differences between LANS (local area networks) and, Explain the importance of the residential cabling & wiring standards, Describe the purpose of a computer bus and how it is used with CCTV,	**5**
V	**Unit Title: Software , Wireless Basics & Distribution Systems:** Introduction to Operating System, Explain different storage methods for CCTV images and evidence , Playback, Backup and restore, Different DVR file players , Explain how wireless receivers operate within the CCTV system	**5**
VI	**Unit Title :Environmental Control, System Design, Troubleshooting , Test Equipment–Legal Issues, Wireless & IP Camera:** Explain the needs or options for CCTV equipment lighting , Explain the relevance of event recording and evidence storageList the steps in planning a CCTV original or retrofit installation, Explain the usage and precautions for multi meters, Explain the various types of liability CCTV, alarm and security firms may experience ,	**10**
	Total	**40**

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Certificate in CCTV Installation & GPS Tracking Training

CCTV Installer

Course Contents – Practical

Course Code	Course Title	Theory / Practical
JSD/EC/002/02	**INSPECT AND INSTALLATION CCTV & GPS TRACKING OF SECURITY TOOLS – LAB**	**Practical**
Exercise No	**Modules (Practical)**	**P / (Hrs.)**
1	Explain and construct various nodes of CCTV surveillance system	5
2	Understanding the facts about CCTV and its interfacing devices	
3	Reassembling the camera & exam the parts of camera to understand their mechanism.	5
4	Different types of Pan tilt zoom camera (PTZ) technologies & their utility to get a better output in surveillance.	
5	Automatic Sequential Switcher switches the images at specified intervals.	10
6	To replace the hardware if there is any issue or malfunction is found while testing	
7	controls of different options in camera such as rotation, speed of movement in pan / tilt camera	10
8	To ensure that there are no cable joins, sharp bends during cabling	
9	To ensure the intended area is covered during movement in case of tilt or pan type of camera	20
10	To procure and place the Digital Video Recorder (DVR), NVR,NAS in an appropriate place as per customer's requirement	
11	Automatic Number plate recognizer (ANPR)	10
12	Bore well camera with audio source	
	Total	**60**

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SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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Certificate course Programmes

Course Content

Electrician and Plumbing

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KARAIKUDI

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Certificate Programme in Electrician and Plumbing

Job Role	**Electrician and Plumbing**
Sector	**Power Sector Jobs**
NSQF level	**4**
QP Code	**JSD/EE/002**
Total number of hours and break up	**80** Hrs. (T: **30** Hrs., P: **50** Hrs.)*
Occupational Standards	1. Ability to Identify Appropriate Tools and Materials for Basic House wiring and Industrial wiring 2. Ability to Produce a basic Electrical Installation in a Safe Manner. 3. Ability to Carry out basic Maintenance Procedure. 4. Ability to do plumping in a efficient manner. 5. Ability to demonstrate logical reasoning in plumping through identifying best material selection and identifying adequate joining process. 6. Ability to be responsible for your own project.
Expected Learning outcome	After completing this programme, participants will be able to: 1. Ability to Identify Appropriate Tools and Materials for Basic House wiring and Industrial wiring 2. Ability to Produce a basic Electrical Installation in a Safe Manner. 3. Ability to Carry out basic Maintenance Procedure. 4. Ability to do plumping in a efficient manner. 5. Ability to demonstrate logical reasoning in plumping through identifying best material selection and identifying adequate joining process. 6. Ability to be responsible for your own project.
Skills focused	• Understand pre-installation related activities involving understanding of the task, material preparation, taking measurements and marking the positions • Install pipes and sanitary fixtures • basic quality check of the installed fittings and fixtures • understanding the installed system, basic inspection and identification of the fault in the system repair like replacement etc. with minimal damage to other systems • Coordinate with seniors and other team members
Course approved by	Bharathidasan University
Placement areas	Railway Indian Army NTPL BHEL

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSD/EE/002/01	Electrician and Plumbing	Theory	25	75	100
JSD/EE/002/02	Practical in Electrician and Plumbing	Practical	25	75	100
				Total	200

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Certificate Programme in Electrician and Plumbing

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EE/002/01	Paper 1: Electrician and Plumbing	Theory
Unit No	Modules (Theory)	T (Hrs.)
I	**BASICS IN ELECTRICIAN** Identification of Basic Tools-Basic Power Circuits-Radials and Rings-Introduction to different cable types and how to strip and terminates cables-Termination of twin & earth cable into different types of junction boxes.-Electrical Formula - Power, Voltage, Current and Resistance-1-way& 2 way radial lighting circuits- Installation of consumer units including circuit breakers, bus bars and cables-Inspection & testing.	10
II	**BASICS IN PLUMBING** Identification & handling of tools-Use of various lock devices- Different types of pipes-Demonstration and uses of Carpenter's hand tools involving sawing, planning, chiseling and making simple joints-Fixing of different fittings GI, CI, PVC/CPVC, PPR, AC and HDPE etc.-Gas welding - Joining of pipes of different diameters and thickness by welding-Simple repair work by welding-Types of fittings for different joints & different pipes-Precautions to be taken while fixing.	10
III	**SAFETY AND SKILLS OF ELECRICIAN & PLUMBING** Basics of Electrical Safety-Earthing & Bonding-Electrical Shock Hazards & Protection Measures-Electrical PPE (Personal Protection Equipment)-Electric Fires & Prevention-Electrical Safety Regulations in India-Implementing Electrical Safety Program in Industries-Corporate policies required for workplace safety-Listening and speaking skills - Entrepreneurial Skills - Funding possibilities - Marketing Strategies - Planning for Business	10
	Total	30

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SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY ★ KARAIKUDI

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Certificate Programme in Electrician and Plumbing

Course Contents – Practical

Course Code	Course Title	Theory / Practical
JSD/EE/002/02	Paper 2: Practical in Electrician and Plumbing	Practical
Exercise No	Modules (Practical)	P (Hrs.)
1	Preparation of Basic wiring Circuits	10
2	Preparation of construction wiring	
3	Preparation of Staircase (2 way) Wiring	10
4	Preparation of Industrial wiring	
5	Measuring of earth resistance (pipe earthing, plate earthing)	10
6	Design of Household Plumbing	
7	Design of Sanitary and drainage system	10
8	Design of Industrial & Irrigation Plumbing	
9	Experiment on Hydraulic plumbing system	10
10	Experiment on Advanced pipe fitting	
	Total	50

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SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY ★ KARAIKUDI

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Certificate course Programmes

Course Content

Electrical Service and Maintenance

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AMARAVATHIPUDUR, KARAIKUDI-630 301.

Jairaam Skill Development Centre
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KARAIKUDI

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Certificate Programme in Electrical Service and Maintenance

Job Role	Electrical Service and Maintenance
Sector	Power Sector Jobs
NSQF level	4
QP Code	JSD/EE/003
Total number of hours and break up	80 Hrs. (T: 30 Hrs., P: 50 Hrs.)*
Occupational Standards	1. SGJ/N0109: Gain Familiarity with Power system 2. SGJ/N0146: Types of House wiring and fault repair in house wiring 3. SGJ/N0132: Mains, distribution, controls circuits and protection in house wiring: 4. SGJ/N0133: Maintenance & Repair of house hold gadgets: 5. SGJ/N0106: Develop customer relationship skills: 6. SGJ/N0120: Use basic health and safety practices for power related work:
Expected Learning outcome	After completing this programme, participants will be able to: 1. Gain Familiarity with Power system 2. Types of House wiring and fault repair in house wiring 3. Mains, distribution, controls circuits and protection in house wiring: 4. Maintenance & Repair of house hold gadgets: 5. Develop customer relationship skills: 6. Use basic health and safety practices for power related work:
Skills focused	• Develop various types of house wiring planning and drawings/layouts according to specific situation • Wiring selection, size, ratings of cables, accessories optimization & forecasting • Common electrical wiring faults, identification and repair of wiring of residential and commercial units • Working safely
Course approved by	Bharathidasan University
Placement areas	Railway Indian Army NTPL BHEL

* T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Tota
JSD/EE/003/01	Electrical Service and Maintenance	Theory	25	75	100
JSD/EE/003/02	Practical on Electrical Service and Maintenance	Practical	25	75	100
				Total	200

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY ★ KARAIKUDI

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Certificate Programme in Electrical Service and Maintenance

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EE/003/01	**Electrical Service and Maintenance**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Basics Of Electricity** Understand basic fundamentals of Electricals-Explaining the basic key concepts of Voltage, Current, Capacitance, Resistance, KVA, KWh.- Understand Circuit connections, voltage and current relationship in star & delta configuration- Understand 3 phase and 1 phase supply-Familiarity with Energy parameters	**10**
II	**Repair and maintenance of house hold gadgets** Repairing and maintenance of Mixer grinders- repairing and maintenance of Washing Machine- repairing and maintenance of Refrigerator	**10**
III	Repair and maintenance **of Motors** Repairing & maintenance of Ceiling and Table fan Motors- Repairing & maintenance of Water motors less than 1hp. Entrepreneurial Skills - Funding possibilities - Marketing Strategies - Planning for Business	**10**
	TOTAL	**30**

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Course Contents – Practical

Course Code	Course Title	Theory / Practical
JSD/EE/003/02	Paper 2:Practical in Electrical Service and Maintenance	Practical
Exercise No	Modules (Practical)	P (Hrs.)
1	Do Basic Current, voltage & power calculations.	10
2	To identify the fault in Electrical appliances.	
3	To rectify the fault using safety precautions.	10
4	Do Maintenance & Identify faults in table fan, ceiling fan.	
5	To Identify different parts of refrigeration and their functions	15
6	Do Maintenance & Identify faults in mixer grinder.	
7	Do Maintenance & Identify faults in Washing machine	15
8	Do Maintenance & Identify faults in Water pump.	
	Total	**50**

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SRI RAAJAA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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Certificate Course on Approval drawing or blue print (Autocad)

Course Contents – Theory

Course Code	Course Title	Theory / Practical
CE1101	**Certificate Course on Approval drawing or blue print (Autocad)**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	INTRODUCTION Applications relating to LAYOUT-Acknowledgement Slip Generation-Permission for Approval in Form A-Application for permission for building in form B-Undertaking In Form C-Layout Development-Revenue Record-Encumbrance Certificate in Original	15
II	**DETAILED DRAWING** Detailed drawing for buildings-key plan-topo plan-site plan-tentative layout plan-electrical drawing-plumbing drawing.	10
III	TYPES OF DRAWING Residential building-building-Educational building-building-Assembly Building-business building-building-Industrial building-building-storage building	15
IV	APPROVAL DRAWING PROCESS Title of the plot-Foundation certificate-NOC from all relevant authority-authority-Detailed site plan-plan-Latest tax receipt-receipt-Encumreceipt-receipt-Encumbrance certificate-Revenue sketch	10

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V	CONTRACTS AND VALUATION Contracts-Types of contract - contract documents-conditions of contract. Valuation of buildings-Standard specification for different items of building construction.	10
	Total	**60**

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SRI RAAJAA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
CE1101	Certificate Course on Approval drawing or blue print (Auto cad)	Theory	25	75	100
				Total	100

SRI RAAJAA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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Certificate course Programmes

Course Content

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(Courses approved by Bharathidasan University)

Certificate Course on Architecture

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Certificate Course on architecture

Course Contents – Theory

Course Code	Course Title	Theory / Practical
CE1102	**Certificate Course on Architecture**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	INTRODUCTION Basic drawing-History of architecture-Architectural symbol-Free hand sketching-plane geometry-orthographic projection-practice drawings.	**15**
II	**DETAILED DRAWING** Detailed drawing for buildings-key plan-topo plan-site plan-tentative layout plan-electrical drawing-plumbing drawing	**10**
III	TYPES OF DRAWING Residential building-Apartment building-Educational building-building-Assembly Building-business building-building-Industrial building-building-storage building-Farm house.	**15**
IV	APPROVAL DRAWING PROCESS Topographic survey-survey-site plan-Floor plan-plan-conceptual landscape plan-plan-Exterior lighting plan.	**10**

SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Certificate Course on Architecture

Job Role	**Architecture Engineer, Architectural draughtsman.**
Sector	**Design sector job**
NSQF level	**5**
QP Code	CE1102
Total number of hours and break up	**100** Hrs. (T: **40** Hrs., P: **60** Hrs.)*
Occupational Standards	1. Classify basic concepts, techniques and application of Auto cad. 2. Understand how to prepare a detailed drawing for a residential buildings. 3. Designing the preparation of bar bending schedule for reinforcement works. 4. Ability to carry over their own project.
Expected Learning outcome	After completing this course, participants will be able to: 1. Approval drawing for a Residential building. 2. Design and Prepare bar bending schedule for reinforcement works. 3. Design and preparation of DTCP Approval.
Skills focused	• Understand the detailed and general specifications for all the buildings like residential and commercial buildings. • Understand how to design the requirements for constructions. • Coordinate with seniors and other team members
Course approved by	Bharathidasan University
Placement areas	Project manager Construction Manager Site Engineer Design engineer Architecture engineer

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Certificate course Programmes

Course Content

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING & TECHNOLOGY
AMARAVATHIPUDUR, KARAIKUDI-630 301.

Jairaam Skill Development Centre
(Courses run by Sri Jairaam Trust)
(Courses approved by Bharathidasan University)

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Certificate Course on Estimation and Quantity Surveying

Job Role	Quantity Surveyor and Estimation Engineer
Sector	Construction Sector Jobs
NSQF level	5
QP Code	
Total number of hours and break up	100 Hrs. (T: 40 Hrs., P: 60 Hrs.)*
Occupational Standards	1. Classify basic concepts, techniques and application of Estimation and Costing. 2. Understand how to prepare a detailed estimate for a residential buildings and calculate the quantities for various items of work. 3. Analyze the rates for various items of work and to prepare a abstract estimates. 4. Designing the preparation of bar bending schedule for reinforcement works. 5. Create various Tender documents for bidding purpose. 6. Ability to carry over their own project.
Expected Learning outcome	After completing this course, participants will be able to: 1. Estimate of quantities for a Residential building and Abstract cost estimates. 2. Design and Prepare bar bending schedule for reinforcement works. 3. Estimate the calculation of earth work quantity for roads and canals. 4. Analyze the rates of work quantities and labour. 5. Analyze the different types of contracts, tender documents for building and valuation.
Skills focused	• Understand the detailed and general specifications for all the buildings like residential and commercial buildings. • Understand how to design the requirements for constructions. • Understand to prepare the rate analysis for various items and labour cost. • Understand to produce the various tender documents. • Coordinate with seniors and other team members
Course approved by	Bharathidasan University
Placement areas	Building surveyor Estimator Quantity surveyor Planning and development surveyor Project manager Construction Manager Site Engineer

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• T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
	Estimation and Quantity surveying	Theory	25	75	100
				Total	100

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Certificate Course on Estimation and Quantity Surveying

Course Contents – Theory

Course Code	Course Title	Theory / Practical
CE702PC	Estimation and Quantity Surveying	Theory
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**EARTHWORKS** Earthwork for buildings, roads, canals, tunnels, architect works and water tanks	15
II	**INTRODUCTION** General items of work in Building according to NBC-Standard units of principles of working out quantites for detailed and abstract designs.	10
III	**QUANTITY ESTIMATION** Detailed estimates of buildings-abstract estimation-standard specification for different items of all civil works-Reinforcement bar bending and bar requirement schedules	15
IV	**RATE ANALYSIS** Rate analysis-Working out data for various items of all civil engineering works according to design, etc and contingent charges	10

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V	**CONTRACTS AND VALUATION** Types of contract – Legal implication-Types of bills-M.Book-Quality control- Valuation of buildings.	10
	Total	60

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SRI RAAJAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI
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Certificate Programme in CNC Operator cum Programmer

Job Role	CNC Operator cum Programmer
Sector	Capital Goods & Manufacturing
NSQF level	4
QP Code	JSDCCNC001
Total number of hours and break up	80 Hrs. (T: 30 Hrs., P: 30 Hrs., H: 20Hrs)*
Occupational Standards	1. Recognize & comply safe working practices, environment regulation and housekeeping. 2. Understand, explain different mathematical calculation & science 3. Interpret specifications, different engineering drawing and apply for different application in the field of work. 4. Select and ascertain measuring instrument and measure dimension of components and record data. 5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality. 6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources. 7. Explain personnel finance, entrepreneurship and manage/organize related task 8. Plan and organize the work related to the occupation.
Expected Learning outcome	After completing this programme, participants will be able to: • Recognize & comply safe working practices, environment regulation and housekeeping. • Understand, explain different mathematical calculation & science • Interpret specifications, different engineering drawing and apply for different application in the field of work. • Select and ascertain measuring instrument and measure dimension of components and record data. • Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality. • Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources. • Explain personnel finance, entrepreneurship and manage/organize related task • Plan and organize the work related to the occupation

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Skills focused	• CNC Setter cum Operator Turning • CNC Operator Turning • CNC Programmer • CNC Operator Machining Technician • CNC Operator Machinist • CNC Operator VMC • CNC Setter cum Operator VMC
Course approved by	Bharathidasan University
Placement areas	• Automation • Material Processing • Production Engineering

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSDCCNC001 - T	Paper 1: Study Of CNC Machine - Basic Training	Theory	25	75	100
JSDCCNC001 - P	Paper 2: CNC Programming And Operation - Practical Training	Practical	25	75	100
				Total	**200**

SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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Certificate Programme in CNC Operator cum Programmer

Course Contents - Theory

Course Code	Course Title	Theory / Practical
JSDCC NC001 - T	**PAPER 1: STUDY OF CNC MACHINE - BASIC TRAINING**	**Theory**
Unit No		
I	**Unit Title:INTRODUCTION TO CNC MACHINE** **Introduction of NC and CNC, definition, working principle of a CNC system,** Technology, principles, features, advantages, applications,– Types of CNC Machines, CNC controllers, characteristics, interpolators– Difference between CNC and conventional lathes. Schematic diagram of CNC system. Axes convention.	**10**
II	**Unit Title: CNC MACHINE TOOL PROGRAMMING** CNC Machine building, **Components of CNC machine** .Cutting parameters - cutting speed, feed rate, depth of cut, constant surface speed, limiting spindle speed. **Manual part programming - coordinate system – Datum points: machine zero, work zero, tool zero - reference points - NC dimensioning – G codes and M codes – linear interpolation and circular interpolation - CNC program procedure - sub-program**	**10**
III	**Unit Title: CNC MACHINE MAINTENANCE & SAFETY** Introduction to Maintenance - Types – Procedure – Guideways, Stepper motors, Servo motors, Coolant Oil, Lubrication of moving parts - Troubleshoot & Overhauling - Safety & Health, Occupational Hazards - Accident & safety- housekeeping & good shop floor practices	**10**
	Total	**30Hrs**

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Certificate Programme in CNC Operator cum Programmer

Course Contents - Practical

Course Code	Course Title	Theory / Practical
JSDCC NC001 - P	**PAPER 2: CNC PROGRAMMING AND OPERATION**	**Practical**
Unit No		
I	**Unit Title: PART PROGRAMMING** **Manual part programming - coordinate system – Datum points: machine zero, work zero, tool zero - reference points - NC dimensioning – G codes and M codes – linear interpolation and circular interpolation - CNC program procedure - sub-program.** Cutting tool materials, cutting tool geometry - insert types, holder types, insert cutting edge geometry, Cutting parameters - cutting speed, feed rate, depth of cut, constant surface speed, limiting spindle speed. Process planning, tool selection and cutting parameters selection	**20**
II	**Unit Title: CNC TURNING EXERCISE** Turning Study of CNC machine, keyboard & specifications, Machine starting & operating in reference point, jog & incremental modes, coordinate system points, absolute & incremental coordinate, **thread cutting – mirroring – drilling cycle – pocketing**, CNC m/c turning with radius/Chamfer - Linear & Circular interpolation. Chuck removal & mounting on CNC Lathe. Tool changes in CNC turning. **2D and 3D machining on CNC** - Manual Data Input(MDI) mode operations & zero offsets & tool offPart program preparation	**15**
III	**Unit Title: CNC MILLING EXERCISE** Milling Study of CNC machine, keyboard & specifications, coordinate system points, assignments absolute & incremental coordinate. Linear interpolation, Circular interpolation, Work offset & tool offset measurement & entry in CNC control. Part program preparation by absolute &linear & Circular interpolation. Milling Tool changes in CNC milling with ATC & Tool Magazine - Preparation of part programme for auto mode execution of CNC machine exercises - Circular & rectangular pockets. Drilling, Milling patterns etc.	**15**
	Total	**50Hrs**

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Certificate Programme in CNC Operator cum Programmer

Course Contents – Training Exercises

Course Code	Course Title	Theory / Practical	
JSDCCNC 001 - P	**CNC PROGRAMMING AND OPERATION - Training Exercises**	**Practical**	
Exercise No	**Modules (Practical)**	**P** (Hrs.)	**H** (Hrs.)
1	Program execution in different modes like single block, manual and auto. Tool and work offsets setting.	5	3
2	Program for Linear interpolation, Circular interpolation, Work offset & tool offset measurement & entry in CNC control.	5	3
3	CNC turning exercises - Part program preparation by absolute & incremental programming.		
4	Manual Data Input(MDI) mode operations & zero offsets & tool off	5	4
5	Part program preparation, CNC machining exercises-stock removal cycle		
6	Threading cycle OD Sub program with repetition. Machine starting & operating in reference point, jog & incremental modes		
7	CNC milling exercises - Milling Tool changes in CNC machine with ATC & Tool Magazine & MPG mode operation.	7	5
8	Manual Data Input (MDI) mode operations & zero offsets & tool offsets, measurement on tool presenter.		
9	Chamfer & counter-sink drilling. Deep hole drilling G83 Threading & tapping G84 Boring cycles G85-G89	8	5
10	Auto mode execution of CNC machine exercises sub program Circular& rectangular pockets. Drilling, Milling patterns etc.		
	Total	**30**	**20**

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Short-term Skill Training Programmes

Certificate Programme in CERTIFICATE COURSE IN TWO- WHEELER & FOUR WHEELER SERVICING

Job Role	**CERTIFICATE COURSE IN TWO- WHEELER & FOUR WHEELER SERVICING**
Sector	**Automobile**
NSQF level	**4**
QP Code	**JSDCTFWS001**
Total number of hours and break up	80 Hrs (T: 30 Hrs., P: 30 Hrs., H: 20 Hrs.)*
Occupational Standards	1. To understand the construction and working principle of various parts of an automobile. 2. To understand the underlying principles of operation of different IC Engines and components. 3. To provide knowledge on pollutant formation, control, alternate fuel etc. 4. To have the practice for assembling and dismantling of engine parts and transmission system 5. To understand the sources of vibration and noise in automobiles and make design modifications to reduce the vibration and noise and improve the life of the engine components
Expected Learning outcome	After completing this programme, participants will be able to: 1. Recognize the various parts of the automobile and their functions and materials 2. Discuss the engine auxiliary systems and engine emission control 3. Distinguish the working of different types of transmission systems 4. Explain the steering, brakes and suspension systems 5. Control techniques for vibration 6. To compare the operations of different IC engine and components and can evaluate the pollutant formation, control, alternate fuel
Skills focused	Servicing two wheeler Four and two stroke engine service Four wheeler servicing Wheel alignment
Course approved by	Bharathidasan University
Placement areas	➢ Start up of work shop for both two wheeler or four wheeler ➢ Authorized service engineer in show rooms ➢ Service mechanics ➢ Two & four wheeler testing engineer in OEMs

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* T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
	Principles of IC ENGINES	Theory	25	75	100
	ASSEMBLY AND DISSEMBLE OF AUTOMOBILES	Practical	25	75	100
				Total	**200**

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CERTIFICATE COURSE IN TWO- WHEELER & FOUR WHEELER SERVICING

Course Contents – Theory

Course Code	Course Title	Theory / Practical
	WHEELER & FOUR WHEELER SERVICING	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title : Vehicle servicing** Warning indications & safety systems - Gear shifting, riding & stopping- Pre-operational checks- Engine oil- Engine oil filter element- Engine sump filter- Spark plug- Magnetic drain plug and secondary drain Plug- HT leads for crack / damage- Fuel hose & clip- Accelerator Cable free play- Rubber hose, Air filter to throttle body- Rubber hose, Inlet manifold / Adaptor- Evaporative Emission Equipment rubber hoses- Air filter paper element- Clutch Cable / lever free play- Side stand switch operation- Wheel removal / assembly- Periodical maintenance- Minor maintenance tips- Long trip precautions- Washing procedure	**10**
II	**Unit Title: MAJOR SERVICE IN AUTOMOBILE:** Rear brake pedal pivot- Battery terminals (apply petroleum jelly)- Earth wire eyelet contact- Front Fork oil / Leak- Rear wheel drive chain- Steering ball races play- Spokes tightness / Wheel rim run out front & rear- Swing Arm pivot bush & spacer- Rear wheel cush rubbers- Tyre wear pattern (Front & Rear)- Disc Brake oil level check (Front & Rear)- Pivot-Side stand, Center stand, Pillion foot rest- Throttle body- Front & Rear brake hose- Hand levers & kick starter lever pivot- Clutch cable- Accelerator cable- Starter motor & Starter relay connections- Brake pads - front & rear- Rear brake pedal free play- Trouble shooting- Alternative energy sources- Automobile Painting & Stickering- Vehicle Customization	**10**
III	**Unit Title: : FOUR WHEELER SERVICING** Osh & Safety Practices- Hand Tools And Equipments- Drilling And Grinding- Fasteners, Sheet Metal- Engine Basic- Power Transmission Basic- Battery And Ignition System- Tyre Repairer/Inspection- Computer Basic- Wheel Balancing- Wheel Alignment- Soft & Entrepreneurship Skill	**10**
	Total	**30 Hrs**

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CERTIFICATE COURSE IN TWO- WHEELER & FOUR WHEELER SERVICING

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
	CERTIFICATE COURSE IN TWO- WHEELER & FOUR WHEELER SERVICING – Lab	**Practical**	
Exercise No	**Modules (Practical)**	**P** (Hrs.)	**H** (Hrs.)
1	IC working and construction	10	5
2	Vehicle construction		
3	Vehicle servicing procedure	10	5
4	*Disassembling* of two wheeler		
5	Disassebling of four wheeler	10	5
6	Carburator repair and tuning		
7	Overhauling of automobile parts	10	5
8	Battery management system		
9	Engine *Disassembling*	10	10
10	Paintings		
	Total	**50**	**30**

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SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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CERTIFICATE PROGRAMME IN REFRIGERATOR AND AC TECHNICIAN

Job Role	**REFRIGERATOR AND AC TECHNICIAN**
Sector	**Electronics**
NSQF level	**3**
QP Code	JSDCRAC001
Total number of hours and break up	**80** Hrs (T: **30** Hrs., P: **30** Hrs., H: **20** Hrs.)*
Occupational Standards	1. To understand the construction and working principle of various parts of cooling systems. 2. To understand the underlying principles of operation of different Refrigerator ,AC and its components. 3. To have the practice for assembling and dismantling of R & AC parts
Expected Learning outcome	After completing this programme participants will be able to: 1. Apply fundamental principles of refrigeration and air conditioning systems 2. Identify different components of refrigeration and air conditioners 3. Identify and use refrigeration tools/ instruments for different operations 4. Estimate the load for AC installation.
Skills focused	Servicing and Repairing of AC Servicing and Repairing of Refrigerator
Course approved by	Bharathidasan University
Placement areas	Cold Storage Food Processing Industries Dairy Industries R and AC Service Center

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSDCRAC001-T	Basics of Refrigeration and Air Conditioning	Theory	25	75	100
JSDCRAC001-P	Service and Maintenance of R and AC Parts	Practical	25	75	100
				Total	**200**

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CERTIFICATE COURSE IN REFRIGERATOR AND AC TECHNICIAN

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSDCRAC001-T	**Basics of Refrigeration and Air Conditioning**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Basics of Refrigeration & Air Conditioning** Identification of refrigeration tools,instruments and equipment. Care and maintenance of these tools and instruments. Measurements of pressure and temperature. Concept of air conditioning and its applications	**14**
II	**Unit Title :Compressor & Types of Refrigeration systems** Identification of components of vapour compression system like compressor, condenser, expansion valve evaporator etc. Dismantling and Assembly of Equipments. Vapour compression system, and vapour absorption system constructional details,working and applications of vapour compression cycle.	**18**
III	**Unit Title: : Types of AC systems and Identification of Tools** Study of Window AC ,Split AC and Centralized AC Familiarization of Safety Procedures, Identification of tools & equipment's General safety precautions to be adopted in refrigeration and Air Conditioning	**18**
	Total	**50**

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CERTIFICATE COURSE IN REFRIGERATOR AND AC TECHNICIAN

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
JSDCRAC001-P	**Service and Maintenance of R and AC Parts – Practical**	**Practical**	
Exercise No	**Modules (Practical)**	**P (Hrs.)**	**H (Hrs.)**
1	Refrigerator Construction and Working	6	4
2	Components Identification in Refrigerator		
3	Fault Identification in Refrigerator	6	4
4	Service and Repair Activities in Refrigerator		
5	Installation of Refrigerator	6	4
6	AC Construction and Working		
7	Components Identification in AC	6	4
8	Fault Identification in AC		
9	Service and Repair Activities in AC	6	4
10	Installation of AC		
	Total	**30**	**20**

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Short-term Skill Training Programs

Course Content

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CERTIFICATE PROGRAM IN INDUSTRIAL ROBOTICS AND MATERIAL HANDLING SYSTEMS

Job Role	Automation Supervisor, Maintenance Supervisor, System Engineer, Controls Engineer, Robotic Engineer, Automation Specialist.
Sector	Industrial automation sector
NSQF level	5
QP Code	JSDCRMHS001
Total number of hours and break up	100 Hrs. (T: 50 Hrs., P: 30 Hrs., H: 20 Hrs.)*
Occupational Standards	• Medium and Large Manufacturing Companies • Automotive and Component Suppliers • Diverse Fields Ranging from Aerospace, Marine, Industrial Systems, Healthcare, Electronics and Consumer Product Industries • Industrial Packaging Applications such as a Material Handling, Packaging • Food & Beverage, Pharma, and Consumer Goods
Expected Learning outcome	After completing this program, participants will be able to: • Differentiate the various types of Industrial Robots and their architecture. • Analyze the applications of robots in various industrial applications. • Design and fabricate simple grippers for pick and place application. • Identify the right Robot for a given industrial application. • Select the right material handling system for a given application. • To design automatic manufacturing cells with robotic control using the principle behind robotic drive system, end effectors, sensor and programming • Develop entrepreneurship skills
Skills focused	• Learn about the types of robots used in material handling systems. • Understand the use of vision systems in automation systems.

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	• Gain knowledge on the different methods of material handling. • To introduce the basic concepts, parts of robots and types of robots. • To make the student familiar with the various drive systems for robot, sensors and their applications in robots and programming of robots. • To select the robots according to its usage. • To discuss about the various applications of robots, justification and implementation of robot. • To know about material handling in a system
Course approved by	Bharathidasan University
Placement areas	• Aerospace and Research • Defense • Entertainment • Manufacturing • Medical research • Automation • CAD • AI & Humanoid • Machine learning based applications • The initial job functions in the field include- Robotics Engineer, Robotics Welding, Mobile Robotics, 3D Robotics, and Robotics Engineer • Entrepreneur / Self-employed

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSDCRMHS001-T	Professional skills in the area of Industrial Robotics And Material handling	Theory	25	75	100
JSDCRMHS001-P	Practical Training in the area of Industrial Robotics And Material handling	Practical	25	100	100
				Total	200

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CERTIFICATE PROGRAM IN INDUSTRIAL ROBOTICS AND MATERIAL HANDLING SYSTEMS

Course Contents

Course Code	Course Title	Theory / Practical
JSDCR MHS00 1-T	**Professional skills in the area of Industrial Robotics And Material handling**	**Theory**
Unit No		
I	**FUNDAMENTALS OF ROBOT** Introduction,Present status and future trends, Definition, Robot Anatomy and Related Attributes, Robot classifications and specifications, Control systems,Specifications of service and field Robots,Co-ordinate systems, work envelope, Pitch, yaw, roll, joint notations, speed of motion and pay load, Robot parts and their functions, Need for robots,Different applications.	10
II	**ROBOT DRIVE SYSTEMS AND END EFFECTORS** Pneumatic drives, Hydraulic drives, Mechanical drives, Electrical drives, D.C. servo motors, stepper motor, A.C. servo motors, End effectors, Grippers: Mechanical grippers, pneumatic and hydraulic grippers, magnetic grippers, vacuum grippers, RCC grippers, Two fingered and three fingered grippers, Internal grippers and external grippers, Selection and design considerations.	10
III	**SENSORS** Robot Accuracy and Repeatability, Requirements of a sensor, principles and applications of the following types of sensors, Position of sensors (Piezo electric sensor, LVDT, Resolvers, Optical encoders, Pneumatic position sensors), Range sensors (Triangulation principle, Structured, Lighting approach, Time of flight range finders, Laser range meters), Proximity sensors (Inductive, Hall effect, Capacitive, Ultrasonic and Optical proximity sensors), Touch sensors (Binary sensors, Analog sensors), Wrist Sensors – Compliance Sensors – Slip Sensors.	10
IV	**ROBOT PROGRAMMING** Basics of Robot Part Programming , Teach pendant programming, Lead through programming, Robot programming languages, VAL programming, Motion commands, Sensor commands, End effecter commands	10
V	**IMPLEMENTATION & INDUSTRIAL APPLICATIONS** RGV, AGV, Implementation of robots in industries and Adopting robots to workstations, Various steps, Safety considerations for robot operations, Application of robots in machining, Welding, Assembly, Material handling, Loading and unloading, CIM.	10
	Total	**50 Hrs**

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CERTIFICATE PROGRAM IN INDUSTRIAL ROBOTICS AND MATERIAL HANDLING SYSTEMS – Practical

Course Code	Course Title	Theory / Practical	
JSDCRM HS001-P	**Practical Training in the area of Industrial Robotics And Material handling**	**Practical**	
Exercise No	**Modules (Practical)**	**P (Hrs.)**	**H (Hrs.)**
1	**Demonstration of Cartesian/ cylindrical/ spherical robot.**	5	4
2	**Demonstration of Articulated/ SCARA robot.**		
3	**Virtual modeling for kinematic and dynamic verification any one robotic . structure using suitable software**	5	4
4	**Design, modeling and analysis of two different types of grippers.**		
5	**Study of sensor integration.**	5	4
6	**Two program for linear and non-linear path.**		
7	**Study of robotic system design.**	5	5
8	**Setting robot for any one industrial application after industrial visit**		
9	**Two case studies of applications in industry**	5	3
10	**Two assignments on programming the robot for applications**		
	Total	**30**	**20**

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CERTIFICATE COURSE ON ELECTRIC VEHICLE SERVICE AND MAINTENANCE

OBJECTIVE OF THE COURSE:

- To understand the construction and working principle of various parts of an Electric Vehicle.
- To understand the underlying principles of operation of an Electric vehicle and the different parts and components.
- To provide knowledge on how IC engines differ from Electric Vehicles (EV).
- To have the practice for assembling and dismantling of parts and transmission system involved in EV
- To understand the need for EV and importance in future developments.
- To provide knowledge on service technologies and regular maintenance of EV

LEARNING OUTCOMES

- Understand how hybrid vehicles operate
- Learn how to work safely around hybrid & electric vehicles
- Understand electrical/electronics and how it applies to HEV/EV vehicles
- Understand the high voltage power train operation
- Understand how the HEV brake system functions
- Safely remove, repair and replace high voltage battery packs
- Perform hybrid preventive maintenance and service

EXPECTED JOB ROLES: SERVICE TECHNICIAN

DURATION OF THE COURSE (IN HOURS) : 80 HRS

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SYLLABUS OF THE COURSE:

S.NO	TOPIC	Minimum No. of Hours
1	Introduction to Advanced Vehicle Technologies	3 Hr
2	Development of Electric Vehicles	2 Hr
3	High Voltage Electrical Safety	4 Hr
4	High Voltage Vehicle Safety Systems	3 Hr
5	Hybrid engines	3 Hr
6	AC Induction Electrical Machines	2 Hr
7	Permanent Magnet Electrical Machines	2 Hr
8	Power Inverter Systems	3 Hr
9	Electric Circuit systems	4 Hr
10	Electric Propulsion Sensing Systems	3 Hr
11	DC-DC Converter Systems	3 Hr
12	Transaxles, Gears and Cooling Systems	4 Hr
13	Energy Management Hardware Systems	3 Hr
14	Battery Construction and Technologies	4 Hr
15	Latest Development in Battery Technologies	3 Hr
16	Nickel-Metal Hydride Technologies	4 Hr
17	Lithium Ion Battery	2 Hr
18	Battery Management Systems	4 Hr
19	Hybrid Vehicle Regenerative Braking Systems	4 Hr
20	Electric Car and Hybrid Climate Control Systems	3 Hr

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21	Design and Making an Adapter for an Electric Motor	3 Hr
22	Design and Making a Fiber-Glass Battery Box	3 Hr
23	Conversion of a Internal Combustion Two wheeler/ Car into a 100% Electric Two wheeler/ Car	3 Hr
24	First Responder Safety for Emergency Situation	4 Hr
25	Basic Electric Car Maintenance	4 Hr
	Practical / Tutorial / Lecture Hours:	80 Hrs
	Total Hours:	80 Hrs

SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
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Short-term Skill Training Programs

Course Content

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Jairaam Skill Development Centre

(Courses run by Sri Jairaam Trust)

(Courses approved by Bharathidasan University)

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Certificate Program in fish culture management

Job Role	Aquaculture farmer
Sector	Agriculture
NSQF level	4
QP Code	QP FCM/5219
Total number of hours and break up	80Hrs. (P: 60 Hrs., H: 20Hrs.)*
Occupational Standards	1. Identification of fish species 2. Pond preparation 3. Methods of water treatment 4. fishkeeping equipment's 5. Feed preparation 6. feed schedule 7. Fish pond inspection 8. Diseases and pests of fish 9. Types of fishing nets 10. Fishing methods
Expected Learning outcome	After completing this programmer, participants will be able to: • Pond preparation • Identify fish species • Handling fish in fish pond • Prepare food feeding for fish • Harvesting and marketing
Skills focused	- planning and goal setting skills - marketing management skills - Entrepreneurial Skills
Course approved by	Bharathidasan University
Placement areas	• Entrepreneur / Self-employed

*T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
521911	Fish culture management practices	Practical	50	150	200
				Total	200

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Certificate Program in fish culture management

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
521911	**Fish culture manageme.it practices**	**Practical**	
Exercise No	**Modules (Practical)**	**P (Hrs.)**	**H (Hrs.)**
1	Identification of fish species	15	4
2	Pond preparation		
3	Methods of water treatment	10	4
4	fishkeeping equipment's		
5	Feed preparation	10	4
6	feed schedule		
7	Fish pond inspection	15	4
8	Diseases and pests of fish		
9	Types of fishing nets	10	4
10	Fishing methods		
	Total	**60**	**20**

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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Short-term Skill Training Programs

Course Content

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Certificate Program in Small poultry farming

Job Role	Small poultry farming
Sector	Agriculture
NSQF level	4
QP Code	QP SPF/4316
Total number of hours and break up	80 Hrs. (P: 60Hrs., H: 20 Hrs.)*
Occupational Standards	1. Preparation of bird accommodation/shed 2. Prepare equipment ,tools and material for bird accommodation 3. Equipment used for handle the birds in poultry sheds 4. Carryout the cleanout activities 5. Prepare the bird feed 6. Harvesting method of eggs and meat 7. Check the external parasite in the bird 8. Monitor the physical condition of the bird 9. Equipment used for feed and water to the bird 10. Prepare IFS with poultry farming
Expected Learning outcome	After completing this programmer, participants will be able to: • Prepare accommodation for poultry birds • Handling poultry birds • Feeding poultry birds • Collection, cleaning and packaging of eggs • Maintaining health and hygiene poultry farm
Skills focused	-planning and goal setting skills - marketing management skills - Entrepreneurial Skills
Course approved by	Bharathidasan University
Placement areas	• Entrepreneur / Self-employed

*T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
234616	Poultry keeping practices	Practical	50	150	200
				Total	200

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Certificate Program insmall poultry farming

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
234616	**Poultry management practices**	**Practical**	
Exercise No	**Modules (Practical)**	**P (Hrs.)**	**H (Hrs.)**
1	Preparation of bird accommodation/sh d	15	4
2	Prepare equipment ,tools and material for bird accommodation		
3	Equipment used for handle the birds in poultry sheds	10	4
4	Carryout the cleanout activities		
5	Prepare the bird feed	10	4
6	Harvesting method of eggs and meat		
7	Check the external parasite in the bird	15	4
8	Monitor the physical condition of the bird		
9	Equipment used for feed and water to the bird	10	4
10	Prepare IFS with poultry farming		
	Total	**40**	**20**

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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Skill Training Programme

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CERTIFICATE IN BHARATHANATIYAM

Job Role	Dancer
NSQF level	4
QP Code	QP CB/N0100
Total number of hours and break up	100 Hrs. (T: 50 Hrs., P: 50 Hrs.)*
Course approved by	Bharathidasan University

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
CB1101	Theory of Bharathanatiyam	Theory	25	75	100
CBP1102	Introduction to Bharathanatiyam	Practical	25	75	100
				Total	200

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KARAIKUDI

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CERTIFICATE IN BHARATHANATIYAM

Course Contents – Theory

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Code	Course Title	Theory / Practical
CB1101	**Theory of Bharathanatiyam**	**Theory**
Exercise No	**Modules (Theory)**	T (Hrs.)
1.	UNIT : 1 **History of Bharathanatiyam** ➢ Methology of Bharatham ➢ Origin of Bharatham according to Natiya Sasthra	10
2.	UNIT : 2 **Muthras** ➢ Single Hand ➢ Double Hand	10
3.	UNIT : 3 **Asaivugal** ➢ Head ➢ Eyes ➢ Neck	10
4.	UNIT : 4 **Nirtha** ➢ Discription of Pushpanjali , Allarippu, Jathiswaram	10
5.	UNIT : 5 **Nirthiya** ➢ Discription of Sabtham, Padham	10
	Total	**50**

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CERTIFICATE IN BHARATHANATIYAM

Course Contents – Practical

Course Code	Course Title	Theory / Practical
CBP1102	Introduction to Bharathanatiyam	Practical
Unit No	Modules (Practical)	P (Hrs.)
1.	UNIT 1: Warmup (5)	10
2.	UNIT 2: **Adavugal** ➢ Thatadavu ➢ Natadavu ➢ Thattimetadavu ➢ Marthithaadavu ➢ Sarikkaiadavu	10
3.	UNIT 3: **Muthras** ➢ Single Hand ➢ Double Hand	10
4.	UNIT : 4 **Asaivugal** ➢ Head ➢ Eyes ➢ Neck	10
5.	UNIT : 5 ➢ Allarippu ➢ Pushpanjali	10
	Total	**50**

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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Skill Training Programme

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CERTIFICATE IN KARNATIC VOCAL

Job Role	Singer
NSQF level	4
QP Code	QP CMV/N0100
Total number of hours and break up	100 Hrs. (T: 50 Hrs., P: 50 Hrs.)*
Course approved by	Bharathidasan University

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KARAIKUDI

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
CV1101	Theo y and History of Music	Theory	25	75	100
CVP1102	Intro uction to Music	Practical	25	75	100
				Total	200

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KARAIKUDI

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CERTIFICATE IN KARNATIC VOCAL

Course Contents – Theory

T= Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Code	Course Title	Theory / Practical
CA1101	Theory and History of Music	
Exercise No	Modules (Theory)	Theory T (Hrs.)
1.	,irf;fiyr; nrhw;fs; ○ ehjk; ○ RUjp ○ MNuhfzk; - mtNuhfzk; ○ jhJ – khJ ○ G+h;thq;fk; - cj;uhq;fk;	10
2	FwpaF Lfs; ○ 12 Ru];jhdq;fspd; jkpo;ngah;fSk; FwpaPLfSk; ○ Mbg;gil jhs rk;ge;jkhd FwpaPLfs; (yF> j;Ujk;> mDj;Ujk;)	10
3	mg;g ɔahrfhd cUg;gbfs; • rusp thpir • [z;l thpir • Nky;];jhap thpir • myq;fhuk;	10
4	Nksfh j;jh uhfk; gl;bay; • gj;J Rj;jkj;ak uhfk; • gj;Jgpujpkj;ak uhfk;	10
5	Njth‡ '%th; tuyhW • jpUQhdrk;ge;jh; • jpUehTf;furh; • Re;ju%h;j;jp Rthkpfs;	10
	Total	**50**

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CERTIFICATE IN KARNATIC VOCAL

Course Contents – Practical

Course Code	Course Title	Theory / Practical
CVP1102	Introduction to Music	
Unit No	Modules (Practical)	Practical
		P (Hrs.)
I	A) Saralivarisai (all speeds) B) Jandaivarisai (2)	10
II	A) Melsdhayivarisai (3varisaigal) B) Alangaram (1st Alangaram)	10
III	**A) Thevaram(Mangayarkarasi)** Raagam : Boopalam Thalam : Aathi **B) Thirupugazh (Kaaranamadhaga)** Raagam : Bhageshree Thalam : Aathi	10
IV	**A) Tamil Keerthani(Devi Neeye Thunai)** Raagam : Keeravani Thalam : Aathi	10
V	A) Thirupaavai (Muthal Paasuram) Raagam : Naatai Thalam : Aathi	10
	Total	**50**

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CERTIFICATE IN FASHION TECHNOLOGY

Job Role	Fashion Designer
NSQF level	4
QP Code	QP CFT/N0100
Total number of hours and break up	100 Hrs. (T: 50 Hrs., P: 50 Hrs.)*
Course approved by	Bharathidasan University

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Course Outline

Course Code	Paper Title	Internal Marks	External Marks	Total
FT1101	Theory – Fashion Designing Practical – Fashion Designing and Garmet Construction. Fashion Designing Practical	40	60	100
	TOTAL			**100**

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KARAIKUDI

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CERTIFICATE IN FASHION TECHNOLOGY

Course Contents

Course Code	Course Title	
FT1101	Theory – Fashion Designing	
Exercise No	Modules	T (Hrs.)
1	**Unit-I** Definition of fashion, Fashion terminologies – Silhoutte, Style, classic, fad, chic, knock off, avant garde, haute couture – Design – types of design –	10
2	**Unit-II** Elements – Line, Shape, Colour, form, texture Principles of Design – Balance, Rhythm, Emphasis, Harmony, Proportion	10
3	**Unit-III** Basics of sewing - Parts and functions of sewing machine, tools required for sewing, care and maintenance of sewing machine.	10
4	**Unit-IV** Patternmaking – methods of patternmaking and cutting, preparation of seams and seam finishes.	10
5	**Unit-V** Types of collar, sleeve, neckline, placket, yoke	10
	Total	50

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Course Code	Course Title	
FT1101	Practical – Fashion Designing	
Exercise No	Modules	T (Hrs.)
1	**Unit-I** Basic Stitches – Machine and Hand stitch, Hem stitch types.	10
2	**Unit-II** Seam and Seam finishes, fullness and its types.	10
3	**Unit-III** Children Frock, School uniform for girls and boys.	10
4	**Unit-IV** Saree Petticoat, Nighty, Night Dress, Plain skirt, umbrella skirt	10
5	**Unit-V** Garment construction – Salwar, Kameez, Ladies Top, Patiala Pant, gathering pant, blouse, Princess blouse.	10
	Total	**50**

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Skill Training Programme

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CERTIFICATE COURSE IN GOODS AND SERVICE TAX(GST)

Job Role	Accounts
Sector	**BFSI**
NSQF level	**4**
QP Code	**QP SSC/N0910**
Total number of hours and break up	**100** Hrs. (T: **50** Hrs., P: **50** Hrs.)*
Occupational Standards	To Know the theoretical and practical aspect of present Indian tax system. To know for improving the competiveness of original goods and services in the market
Expected Learning outcome	Assess the need for one nation,one tax and one market through GST Understand importance of enhancing the national revenue through GST Known to eliminated the multible tax system through GST Known GST to more benefited to the indian service industry GST Accountant is a person who deals with calculating and verifying data with receipts and payments schedule, requires arithmetic and analytical skills. The person in this job role would be preparing reports, presenting the case and seeking approval for making payment from the concerned person .and has to have strong communication skills, reading, and writing and comprehension skills.
Skills focused	The individual is responsible for systematic calculations of receipts and payments on a periodic basis based on the documents supplied to him and based on his own learning and experiences, he devices strategy to complete the task assigned to him on time, and is responsible for own work. He is also responsible, to keep abreast of latest changes in taxation laws (as is applicable to the business) and undertake continuous upskilling activities.

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CERTIFICATE COURSE IN GOODS AND SERVICES TAX(GST)

Course Contents – Theory

Course Code	Course Title	Theory / Practical
SA110 1	Goods and Services Tax(GST)	Theory
Unit No	Modules (Theory)	T (Hrs.)
I	**INTRODUCTION OF GOODS AND SERVICE TAX, 2017 (GST) AND REGISTRATION** Meaning of GST–Scope–Features-GST Council-Classification of GST-CGST-IGST-SGST-Definitions-Person-Business-Goods-Services-Registration Procedures-Taxable Person-HSN/SAC classification-Meaning of Supply-Place of Supply-Time and Value of Supply-Charge and Levy.	10
II	**LEVY AND COLLECTION OF CGST/SGST Composition scheme-Exemptions-Time and valuationsof taxable supply-Input tax-Input serviceDistributor-Registration Under GST-Migration-Tax,Invoice,credit and debit notes-Accounts and record keeping**	5
III	**INWARD AND OUTWARD SUPPLIESUNDER CGST Filling of returns-Payment processes-Refund-Assesment procedures-Audit of tax payers-Inspection,search and seizure-Demand and recovery-Liabilityto pay tax-Advance Ruling-Offences,Penalties,Appeal and revision-Anti Profiteering-Transitional provisions-Treatment of unavailed CEVAT**	10

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IV	**INTEGRATED GSTACT 2017** **Special features-Admin-levy and collection of IGST-supply of goods under interstate trade or commerce-Exemptions-Apportionment of Tax-Application of provisions of CGST** **Union territory GST act 2017 :salient features-Levy and collection of UTGST- Excemptions-Advance ruling-applications of provisions of CGST;** **GST(Compensation to states) Act 2017:Salient features-Levy and collection of Cess-Compensation**	**10**
V	**ACCOUNTING PACKAGE WITH GOODS AND SERVICES TAX** **Reverse Charge Mechanism Entry for GST in Tally, Sales Voucher with GST: Updating GST Number for Suppliers-Intra-State Sales Entry in GST (SGST + CGST)-Inter- State Sales Entry in GST (IGST)-Printing GST Sales Invoice from Tally ERP9 Software, GST Reports and Returns.**	**10**
VI	**CUSTOMS LAW** **Meaning-Objectives-Scope-Types of Customs duty-Levy and collectionof customs duty-Valuation of goods underthe customs Act-Duty drawback-Ware housing-Confiscation of goods-Imposistion of penalties:search:seizureand arrest.offences and prosecution provisionsAdjudication_Appeal and Revision –principles and Applicability with reference to Indirect taxes Contemporary developments during the period of the course concerned**	
	Total	**50**

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Goods & Services Tax (GST) Accounts Assistant ssc / Q 0910	
Assessable Outcome to be assessed	Assessment criteria
N 0910 Identifying GST Taxable Event	PC1. Recognise the applicability of SGST, CGST and IGST PC2. Define the concept of supply. PC3. Differentiate between taxable and non-taxable supply PC4. Define the taxable event with respect to supply of goods PC5. Identify the place of supply so as to decide the applicability of the tax PC6. Define what is meant by location of supplier of goods.
N0911 Maintaining GST Records and Filing GST Returns	PC1. List down the registration process for single or separate business PC2. Note down the details to be furnished during the registration PC3. Differentiate between taxable person versus registered person PC4. Understand the benefits of registration PC5. Register an assessed under GST independently PC6. Identify Instances for eligibility of Input Credit PC7. Identify set-offs under GST wherever applicable PC8. Identify in detail carry over credit, capital goods credit, embedded credits etc. PC9. Differentiate between consideration and valuation PC10. Maintain the different types of ledgers PC11. Prepare different types of periodic returns to be filed PC12. File returns online. PC13. List the different type of payment, due date, modes of payment with rules and collection of tax, penalties etc. PC14. Differentiate on TDS versus TCS PC15. Calculate the amount of tax payable PC16. Make the payment online

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Short-term Skill Training Programmes

Course Content

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SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY ★ KARAIKUDI

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Certificate Programme in Welding

Job Role	Welder
Sector	Fabrication
NSQF level	4
QP Code	JSDCWOO1
Total number of hours and break up	100 Hrs. (T: 50 Hrs., P: 30 Hrs., H: 20 Hrs.)*
Occupational Standards	• Prepare site feasibility study report • Installation and commissioning welding plant • Quality Assurance of welded components • Maintain personal health & safety at project site • Work effectively with others
Expected Learning outcome	After completing this programme, participants will be able to: • Weld safely and avoid practices that could pose a danger to others. • Demonstrate correct welding procedures for FCAW/SAW • Maintain personal health & safety at project site • Work effectively with others
Skills focused	• Basic welding process • Different welding characteristics • Installation and commissioning of welding plant • Basic Skills about different welding process
Course approved by	Bharathidasan University
Placement areas	• Fabrication in different metal manufacturing areas • Welder • Self-employed

*T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSDCWOO1-T	Principles of welding process	Theory	25	75	100
JSDCWOO1-P	Fabrication of different welding configuration	Practical	25	75	100
				Total	200

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Certificate Programme in welding

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSDCWOO1-T	WELDING	Theory
Unit No	Modules (Theory)	T (Hrs.)
I	Unit Title: Historical evolution of welding classification of welding processes; flame, arc, resistance, solid state etc., oxy-gas and related welding processes methods of safe handling and working, hazards and their prevention. Importance of Welding in Industry - Course objectives - Safety precautions in Shielded Metal Arc Welding (SMAW),Oxy Acetylene Welding (OAW) and Oxy Acetylene Gas Cutting (OAGC) - Fire and firefighting equipments.characteristics of flames produced by different fuel gases,	12
II	Unit Title :welding accessories Oxygen – properties – manufacturing methods. Oxygen and Acetylene gas cylinders-charging methods-Color coding for different gas cylinders, safe handling and storage - Gas pressure regulator, Gas welding and cutting blow pipe. Gas welding techniques. Rightward and Leftward techniques. - Gas welding filler rods, specifications and sizes. - Gas welding fluxes – types and functions. - Gas welding defects, causes and remedies. Classification of steel. - Welding of low, medium and high carbon steel and alloy steels - Aluminum- properties and weldability, welding methods. - Copper – types- properties and welding methods. Brass – types – properties and welding methods. - Stainless steel - types- weld decay and weldability	18
III	Unit Title: Arc and TIG welding processes . Principles of gas shielded arc welding; physical phenomena, operating principles of TIG, MIG/MAG and flux cored processes, inert and active gases and their effects on arc characteristics, filler materials. TIG welding ; arc ignition methods, choice of type of current, polarity, shielding gas and electrodes type according to application, joint preparation, equipment and accessories. MIG / MAG and flux cored Arc welding processes; equipment and accessories, metal transfer modes – dip, globular, spray, pulsed and rotating; consumables, shielding gases and filler materials. Joint preparation.	20
	Total	50

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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Certificate Programme in Solar PV Engineer

Course Contents – Practical

Course Code	Course Title	Theory / Practical	
JSDCWO O1-P	Design and Installation of Solar PV Systems – Lab	Practical	
Exercise No	Modules (Practical)	P (Hrs.)	H (Hrs.)
1	Do's & don't do in lab	5	2
2	Preventive measures during welding process		
3	Preparation of different joint configurations Nomenclature and symbol of welding joints	10	5
4	Prepare welding machine power sources		
5	Layout of welding process	15	4
6	Planning and executing required electrical connections (transformer, filler rod)		
7	Explaining about different welding process (Arc, TIG,MIG etc.,)	10	4
8	Connectivity with welding machines		
9	Troubleshooting with welding process	10	5
10	Case Study : Preparation of welding process		
	Total	30	20

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
SA1101	**Cyber Systems and Cyber Forensics**	Theory	25	75	100
SA1102	**Cyber Audits and Security Formats**	Theory	25	75	100
SAP11P1	Inspect and Installation various Information security tools	Practical	25	75	100
SAP11P2	Cryptography Lab	Practical	25	75	100
				Total	**400**

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DIPLOMA IN CYBER SECURITY

Security Analyst

Course Contents – Theory

Course Code	Course Title	Theory / Practical
SA1101	**Cyber Systems and Cyber Forensics**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Introduction to Security and Information Policies** History- what is Information Security-Critical Characteristics of Information-NSTISSC Security Model-Components of an Information System-Securing the Components-Balancing Security and Access-The SDLC-The Security SDLC-Need for Security-Business Needs-Threats-Attacks-Legal-Ethical and Professional Issues -Blueprint for Security-Information Security Poicy-Standards and Practices-ISO 17799/BS 779-NIST Models-VISA International Security Model-Design of Security Architecture-Planning for Continuity	**15**
II	**Unit Title: Security Analysis and Physical Design** Risk Management - Identifying and Assessing Risk-Assessing and Controlling Risk-Security Technology-IDS-Scanning and Analysis Tools-Cryptography-Access Control Devices- Physical Security-Security and Personnel- Processing Crime and Incident Scenes – Working with Windows and DOS Systems.-Current Computer Forensics Tools: Software/ Hardware Tools.	**20**

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III	**Unit Title: Design of Information Security Audits** Information security essentials for IT Managers- Security Management System - Policy Driven System Management- IT Security - Online Identity and User Management System - Intrusion and Detection and Prevention System- Cyber Forensics- Cyber Forensics and Incidence Response - Security e-Discovery - Network Forensics - Data Encryption- Satellite Encryption - Password based authenticated Key establishment Protocols- Privacy on the Internet - Privacy Enhancing Technologies - Personal privacy Policies - Detection of Conflicts in security policies- privacy and security in environment monitoring systems. Storage Area Network Security - Storage Area Network Security Devices - Risk management - Physical Security Essentials	15
	Total	**50**

Course Code	Course Title	Theory / Practical
SA1102	**Cyber Audits and Security Formats**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
IV	**Unit Title: Team Analysis and Validation of Cyber Audits** Introduction to Traditional Computer Crime-Traditional problems associated with Computer Crime-Introduction to Identity Theft & Identity Fraud-Types of CF techniques - Incident and incident response methodology - Forensic duplication and investigation-Preparation for IR: Creating response tool kit and IR team. - Forensics Technology and Systems - Understanding Computer Investigation – Data Acquisition-Validating Forensics Data – Data Hiding Techniques – Performing Remote Acquisition – Network Forensics – Email Investigations – Cell Phone and Mobile Devices Forensics	**20**
V	**Unit Title: Security requirements and Network Security Formats** IP Sec Protocol - IP Authentication Header - IP ESP - Key Management Protocol for IPSec. Transport layer Security:-SSL protocol-Cryptographic Computations – TLS Protocol- PGP - S/MIME - Internet Firewalls for Trusted System-Roles of Firewalls – Firewall related terminology- Types of Firewalls - Firewall designs - SET for E-Commerce Transactions-Internet Security - Botnet Problem- Intranet security- Local Area Network Security - Wireless Network Security - Wireless Sensor Network Security- Cellular Network Security- Optical Network Security- Optical wireless Security.	**20**
	Total	**40**

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DIPLOMA IN CYBER SECURITY

Security Analyst

Course Contents – Practical

Course Code	Course Title	Theory / Practical
SAP11P1	**Inspect and Installation various Information security tools – Lab**	**Practical**
Exercise No	**Modules (Practical)**	**P (Hrs.)**
1	Creating a Forensic Image using FTK Imager/Encase Imager	10
2	Perform data acquisition using: - USB Write Blocker + FTK	
3	Forensics Case Study: Solve the Case study (image file) provide in lab using Encase Investigator or Autopsy	10
4	Capturing and analyzing network packets using Wire shark	
5	Using Sys internals tools for Network Tracking and Process Monitoring	10
6	Recovering and Inspecting deleted files	
7	Acquisition of Cell phones and Mobile devices	10
8	Understanding Email Forensics	
9	Implementing Web Data Web Browser Forensics	10
10	Case Study: Demonstrate intrusion detection system (ids) using any tool eg. Snort s/w	
	Total	**50**

T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

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PRACTICAL PAPER-II

DIPLOMA IN CYBER SECURITY

Course Contents – Practical

Course Code	Course Title	Theory / Practical
SAP11P2	**Cryptography – Lab**	**Practical**
Exercise No	**Modules (Practical)**	**P (Hrs.)**
1	Perform encryption, decryption using the following substitution techniques 1. Ceaser cipher, 2. playfair cipher 3. Hill Cipher 4. Vigenere cipher	15
2	Perform encryption and decryption using following transposition techniques 1. Rail fence-row and Column Transformation	
3	Apply DES algorithm for practical applications.	10
4	Apply AES algorithm for practical applications.	
5	Implement RSA Algorithm using HTML and JavaScript	05
6	Implement the Diffie-Hellman Key Exchange algorithm for a given problem.	
7	Calculate the message digest of a text using the SHA-1 algorithm.	10
8	Implement the SIGNATURE SCHEME – Digital Signature Standard.	
9	Automated Attack and Penetration Tools Exploring N-Stalker, a Vulnerability Assessment Tool	10
	Total	**50**

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DIPLOMA IN CYBER SECURITY

Job Role	Security Analyst
Sector	IT-ItcS
NSQF level	4
QP Code	QP SSC/N0900 Security Analyst
Total number of hours and break up	175 Hrs. (T: 75 Hrs., P: 100 Hrs.)*
Occupational Standards	1. SSC/N0901:Contribute to managing information security 2. SSC/N0902:Co-ordinate responses to information security incidents. 3. SSC/N0903: Contribute to information security audits. 4. SSC/N0904: Support teams to prepare for and undergo information security audits. 5. SSC/N0905: Manage your work to meet requirements. 6. SSC/N0906: Provide data/information in standard formats.
Expected Learning outcome	After completing this programme, participants will be able to: • Audit and execute risk management processes, risk treatment methods, and key risk and performance indicators. • Design and develop security architecture for an organization. • Design operational and strategic cyber security strategies and policies. • Measure the performance and troubleshoot cyber security systems.
Skills focused	- Requirement analysis for organization security - Protecting Unauthorized access - Installation of security Tools - Audit security incidents - Entrepreneurial Skills
Course approved by	Bharathidasan University
Placement areas	• Banks • Government sector • Security Companies • Self-employed

T = Theory, P=Practical, H=hands on training / Aptitude / Project work/ task oriented
ctivities

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KARAIKUDI

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DIPLOMA IN ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Job Role	Machine Learning Engineer
Sector	**IT-IteS**
NSQF level	**6**
QP Code	**QP SSC/ML0900**
Total number of hours and break up	**200** Hrs. (T: **75** Hrs., P: **125** Hrs.)*
Occupational Standards	
Expected Learning outcome	After completing this programme, participants will be able to: • The trainee should be able to develop programming solutions using Python. • The trainee will have a good understanding of machine learning concepts. • Trainees will be able to build various Bayesian models and mixture models comprising of both real and discrete valued data. • Trainees will be proficient in text mining, information retrieval and extraction. • Trainees will be proficient in fundamental neural network architecture.
Skills focused	- Knowing Supervised and unsupervised techniques - Knowing about text mining - Knowing about deep learning techniques
Course approved by	Bharathidasan University
Placement areas	• Automation Industries • Software Companies • Automation Consultant

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DIPLOMA IN ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
MA101	Study about Artificial, Machine and Deep Learning	Theory	25	75	100
MA102	Project / Internship	Practical	50	150	200
				Total	**300**

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PAPER-I

DIPLOMA IN MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

Course Contents – Theory

Course Code	Course Title	Theory / Practical
MA101	**Study about Artificial , Machine Learning and Deep Learning**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Foundations for Machine Learning** Python Fundamentals - Scientific Python - Linear Algebra - Random Process - Optimization Techniques	**15**
II	**Unit Title: Machine Learning Techniques** Introduction to Machine Learning - Supervised Learning – Regression Supervised Learning – Classification -Non – Parametric Techniques Unsupervised Learning - Model evaluation	**25**
III	**Unit Title: Probabilistic and Statistical Methods for Learning** Bayesian and Mixture Models - Inference techniques- Text Mining	**10**
IV	**Unit Title: Deep Learning Techniques** Introduction to deep learning - Neural Network Architecture - Back Propagation and Regularization - Deep Learning Architectures - Generative Models - Deep Reinforcement Learning	**15**
V	**Soft Skills** Positive visualization creating an impression Importance of etiquette,Social etiquette Unit Corporate Culture, Professional ethics	**10**
	Total	**75**

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PRACTICAL PAPER-I

DIPLOMA IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Machine Learning Engineer

Course Contents – Project / Internship

Course Code	Course Title	Theory / Practical / Project /Internship
ML3301	Conceptualization, design, development, and evaluation of an artificial Intelligent model using classical machine learning framework	**Project/ Internship**
	Total	**125**

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PAPER-II
DIPLOMA IN MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

Course Contents – Theory

Course Code	Course Title	Theory / Practical
MA102	**Study about Artificial , Machine Learning and Deep Learning**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**UNIT TITLE: PROBLEM SOLVING METHODS** Problem solving Methods – Search Strategies- Uninformed – Informed – Heuristics – Local Search Algorithms and Optimization Problems – Searching with Partial Observations – Constraint Satisfaction Problems – Constraint Propagation – Backtracking Search – Game Playing – Optimal Decisions in Games – Alpha – Beta Pruning – Stochastic Games	**15**
II	**UNIT TITLE: KNOWLEDGE REPRESENTATION** First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining-Backward Chaining – Resolution – Knowledge Representation – Ontological Engineering-Categories and Objects – Events – Mental Events and Mental Objects – Reasoning Systems for Categories – Reasoning with Default Information	**25**
III	**UNIT TITLE: SOFTWARE AGENTS** Architecture for Intelligent Agents – Agent communication – Negotiation and Bargaining –Argumentation among Agents – Trust and Reputation in Multi-agent systems.	**20**
IV	**UNIT TITLE: APPLICATIONS** AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing – Machine Translation – Speech Recognition – Robot –Hardware – Perception – Planning – Moving	**15**
	Total	**75**

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PRACTICAL PAPER-II

DIPLOMA IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Machine Learning Engineer

Course Contents – Project / Internship

Course Code	Course Title	Theory / Practical / Project /Internship
ML3302	Conceptualization, design, development, and evaluation of an artificial Intelligent model using deep machine learning framework	**Project/ Internship**
	Total	**125**

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Diploma Training Programme

Course Content

INTERNET OF THINGS

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING & TECHNOLOGY
AMARAVATHIPUDUR, KARAIKUDI-630 301.

Jairaam Skill Development Centre
(Courses run by Sri Jairaam Trust)
(Courses approved by Bharathidasan University)

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Job Role	IOT – Network Specialist
Sector	FUTURE SKILLS INTERNET OF THINGS
NSQF level	4
QP Code	JSD/EC/004
Total number of hours and break up	100 Hrs. (T: 50 Hrs., P: 100 Hrs.)*
Occupational Standards	1.Develop your knowledge, skills and competence 2. Build and maintain relationships at the competence 3. Convince others to take appropriate action in different situations 4. Manage and collaborate with stakeholders for project success 5. Create technical documents and manuals 6. Design network architecture for end- to-end IoT solutions 7. Design network architecture considering capacity, reliability and security requirements 8. Maintain, manage, monitor and troubleshoot IoT network
Expected Learning outcome	**After completing this programme, participants will be able to:** • Explain the nature of work across the IT-ITeS sector, the various sub sectors and their evolution. • Elaborate the various occupations under the Future Skills sub Sector and the impact of these on organizations and businesses. • Discuss the evolution of IoT and evaluate the possible impact of IoT on businesses and society • List common security and privacy risks that affect IoT solutions And methods that mitigate them • Assess characteristics specific to IoT networks and evaluate key IoT network concepts • Analyze network design methodologies and considerations •Evaluate the characteristics of connectivity protocols for both device-device and device-cloud communications • Assess the methods and processes used to maintain IoT Networks •Create various types of technical documents •Identify methods to develop knowledge, skills and competence •Develop strong relationships at the workplace through effective Communication and conflict management. • Communicate persuasively by using evidences to support arguments • Manage and communicate with stakeholders

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Course approved by	Bharathidasan University
Placement areas	• Government sector • Embedded programs engineer • Security Companies • Self-employed

*T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
JSD/EC/004/01	Principles of IOT	Theory	25	75	100
JSD/EC/004/02	Inspect and Installation various programming tools – Lab	Practical	50	150	200
				Total	**300**

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DIPLOMA IN IOT

Network Specialist

Course Contents – Theory

Course Code	Course Title	Theory / Practical
JSD/EC/ 004/01	**Principles of IOT**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Introduction to Internet of Things**: Definition and characteristics of IOT, Physical design of IOT, Things in IOT, IOT Protocols, Logical Design of IOT, IOT functional blocks, IOT communication Models, IOT communication API's, IOT enabling Technologies Wireless sensor networks, Cloud Computing, Big Data Analytics, Communication protocols, embedded systems. IOT Levels and Deployment templates – IOT Level-1, IOT Level-2, IOT Level-3, IOT Level-4, IOT Level-5, IOT Level-6UNIT II: Domain specific IOT	**10**
II	**Unit Title: Domain specific IoT:** Introduction, Home automation- Smart lighting, smart appliances, intrusion detection, smoke for gas detectors; Cities- Smart Parking, Smart lighting, Smart Roads, Structural Health Monitoring, surveillance, Emergency Response; Environment- Weather monitoring, airpollution monitoring, noise pollution monitoring, forest fire detection, river flood's detection; Energy- Smart grids, renewable energy systems, prognostics; Retail- Inventory management ,smart payments, smart vending machines; Logistics- Route generation and scheduling, Fleet tracking, Shipment monitoring, Remote vehicle diagnostics; Agriculture- Smart Irrigation, Green house control; Industry- Machine diagnosis and prognosis, indoor air Quality monitoring; Health and Life Style- Health and fitness monitoring, Wearable electronics.	**10**
III	**Unit Title:IoT and M2M:** Introduction, M2M, Difference between IoT and M2M, SDN and NFV for IoT- Software defined networking, network function virtualization;	**10**

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IV	**Unit Title: IOT Platforms Design Methodology:** Introduction, IOT Design and Methodology- Purpose and requirements specification, Process specification, Domain model specification, Information model specification, service specification, IOT level specification, functional view specification, Operational view specification, Device and component integration, application development.	10
V	**Unit Title: IOT Physical Devices and Endpoints &Ethics in IOT** What is an IOT device? , Basic Building blocks of an IOT Device, Exemplary Device: Raspberry Pi, About the Board, Linux on Raspberry Pi, Raspberry Pi Interfaces, Other IOT devices, Characterizing the IOT, Privacy, Control – Disrupting Control, Crowd sourcing, Environment – Physical thing, Electronics, Internet service; Solutions – The IOT as a part of the solution, cautious optimism, the open IOT definition.	10
	Total	**50**

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DIPLOMA IN IOT

Network Specialist

Course Contents – Practical

Course Code	Course Title	Theory / Practical
JSD/EC/0 03/02	**Inspect and Installation various programming tools – Lab**	**Practical**
Exercise No	**Modules (Practical)**	**P / (Hrs.)**
1	Recognize the Components of The Internet of Things	20
2	Programming Technologies	
3	Getting practical Knowledge of IOT Microcont	20
4	Develop Concept of Interfacing of Arduino with Internet	
5	Explain the Concept of Sensors and Actuators	20
6	Communication Models & Protocols	
7	Data Management & Analytics	20
8	Develop Concept of Arduino Communication with Android phone & Cloud	
9	Technological Aggregation & Case Studies, Mobile Application Development	20
10	Optical fiber cable slicing	
11	Project	
	Total	**100**

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SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY KARAIKUDI

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DIPLOMA IN COMPUTER APPLICATION

Job Role	Office Assistant / Assistant Multimedia Content Creator / Assistant Computer Technician,, Technical support(Desktop), Assistant Network Administrator, IT Support Staff, Web Designer, Graphics Designer, Data Entry Operator, Computer instructor
Sector	**IT-ItcS**
NSQF level	**4**
QP Code	**QP DCA/03601 Technical Analyst**
Total number of hours and break up	**100 Hrs. (T: 75 Hrs., P: 125 Hrs.)***
Occupational Standards	1. DCA/N3301: The qualification has a wide scope of employability ranging from self or contractual employment to education sector 2. DCA/N3302. After successful completion of the qualification the candidates shall be employed in the industries for following occupations: • Software Developer • Web Developer • IT Faculty 3. DCA/N3303: Individual is responsible to develop & implement new software & database and to maintain & update existing software & database to improve the performance 4. DCA/N3304 CCA certificateholder can execute basic computer tasks and can also become a computer teacher at primary level. 5. DCA/N3305: can also own Computer teaching Centre for children or adults who wish to learn computer basics. 6. DCA/N3306: Provide data/information in standard formats.
Expected Learning outcome	After completing this programme, participants will be able to: • Various parameters like familiarity with the computers, handling of computer • learn basic concepts of network and internet skills.. • Learn to write SQL queries for database definition and manipulation. • Understand basic concepts of data communications and transmission modes & methods. • Know the importance of effective communication. • Learn the basic communication skills to enhancecompetencies
Skills focused	➢ Requirements of basic computer operations ➢ Office related works ➢ Document maintain

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	➢ Protecting Unauthorized access ➢ Installation of security Tools ➢ Audit security incidents ➢ Entrepreneurial Skil's
Course approved by	Bharathidasan University
Placement areas	➢ Banks ➢ Government sector ➢ DB Admin ➢ Self-employed

* T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
DCA3301	Principles of computer applications	Theory	25	75	100
DCA3302	Create and Installation of various application tools	Practical	50	150	200
				Total	**300**

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PAPER-I

DIPLOMA IN COMPUTER APPLICATION

Course Contents – Theory

Course Code	Course Title	Theory / Practical
DCA3301	**Principles of Computer Application**	**Theory**
Unit No	**Modules (Theory)**	**T (Hrs.)**
I	**Unit Title: Computer Fundamental & System Maintenance & Information Security** **Computer Fundamental: Various** parameters like familiarity with the computers, handling of computer -Interfacing basic parts of computer. **System Maintenance Information Security: General** Maintenance of systems Identify RAM Hard Disk etc - Configuration of floppy disk drives, optical drives. **Troubleshooting computers**: Identifying power problems, POST error codes, boot failures and peripheral failures.	**20**
II	**Unit Title: Concepts of DBMS** Basics of DBMS, Advantages of DBMS. Data Base Operations: Operations: Creating, dropping, and manipulating table structure. Manipulation of Data, SQL - Design and Development of Applications using MS Access: Creation of Tables, Queries, GUI, Creation of Forms – text box, labels, list box, combo box, buttons and controls, Generation of Reports , Web browsing to a form , Web Page reports -Design and Development of Applications using MySQL :Creation of Tables, Queries using MySQL.	**20**
III	**Unit Title: Data Communication and Networking** Introduction to Data Communication, Network, Protocols & standards and standards organizations □ Line Configuration □ Topology- Transmission mode □ Classification of Network □ OSI Model □ Layers of OSI Model.	**20**

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IV	**Unit Title: Soft Skills** Importance of communication, Types of communication – Verbal/ Non-verbal, Barriers of Communication. Interview dress code, controlling nerves -Selling yourself at the interview, Mock interview. Professional etiquette- Mutual respect, Time management-Report writing, CV writing, Business-letters for general/professional purposes	15
	Total	**75**

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PRACTICAL PAPER-I

DIPLOMA IN COMPUTER APPLICATION

Course Contents – Practical

Course Code	Course Title	Theory / Practical
DCA3302	Create and Installation of various application tools	Practical
Exercise No	**Modules (Practical)**	**P (Hrs.)**
1	**MSWORD : :** 1. Text Manipulations. 2. Usage of Numbering, Bullets, Footer and Headers. 3. Usage of Spellcheck, and Find &Replace. 4. Text Formatting. 5. Picture insertion and alignment. 6. Creation of documents, using templates. 7.Creationtemplates 8.MailMerge Concepts 9.CopyingText&PicturesfromExcel	35
2	**MS-EXCEL** 10.Cell Editing 11.Usage of Formulae and Built in Functions 12.File Manipulations 13.DataSorting(both number and alphabets) 14.WorksheetPreparation 15.DrawingGraphs 16.UsageofAutoFormatting	
3	**POWER POINT** 17.Inserting Clipart's and Pictures 18.Frame movements of the above 19.Insertion of new slides 20.Preparation of OrganisationCharts 21.Presentation using Wizards 22.Usage of design templates	30
4	Create a program to verify whether email address provided by user is valid or invalid.	
5	Data Definition Commands, Data Manipulation Commands for inserting, deleting, updating and retrieving Tables and Transaction Control statements	

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6	Create the student database with the following tables and do the following: assessment(reg_no,name, mark1, mark2, mark3, total) dept_details (dept_no, dept_name, location). i. Using alter command drop the column location from the table dept_details. ii. Display all dept_name along withdept_no. iii. Drop the table dept_details.	35
7	Create the Company database with the following tables and do the following: Administration(employee_salary, development _cost, fund_amount, turn_over,bonus) Emp_details (emp_no, emp_name, DOB, address, doj, mobile_no, dept_no,salary). i. Calculate the total and average salary amount of the employees of each department. ii. Display total salary spent for employees.	
8	➢ Introduction to Soft Skills ➢ Communication Skills ➢ Presentation Skills ➢ Time Management Skills	25
9	➢ Body Language & Etiquettes ➢ Group Discussion& Interview Skills ➢ Preparation of CV	
	Total	**125**

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DIPLOMA IN COMPUTER APPLICATION

Job Role	Office Assistant / Assistant Multimedia Content Creator / Assistant Computer Technician,, Technical support(Desktop), Assistant Network Administrator, IT Support Staff,WebDesigner, Graphics Designer, Data Entry Operator, Computer instructor
Sector	**IT-ITeS**
NSQF level	**4**
QP Code	**QP DCA/03701**
Total number of hours and break up	**100 Hrs. (T: 50 Hrs., P: 50 Hrs.)***
Occupational Standards	7. DCA/N3401: The qualification has a wide scope of employability ranging from self or contractual employment to education sector 8. DCA/N3402 . After successful completion of the qualification the candidates shall be employed in the industries for following occupations: • Software Developer • Web Developer • IT Faculty 9. DCA/N3403: Individual is responsible to develop & implement new software & database and to maintain & update existing software & database to improve the performance 10. DCA/N3404 CCA certificate holder can execute basic computer tasks and can also become a computer teacher at primary level. 11. DCA/N3405: can also own Computer teaching Centre for children or adults who wish to learn computer basics. 12. DCA/N3406: Provide data/information in standard formats.
Expected Learning outcome	After completing this programme, participants will be able to: • Various parameters like familiarity with the computers, handling of computer • learn basic concepts of network and internet skills.. • Learn to write python queries for database definition and manipulation. • Understand basic concepts of data communications and transmission modes & methods. • Know the importance of effective communication. • Learn the basic communication skills to enhance competencies
Skills focused	➢ Requirements of basic computer operations ➢ Office related works ➢ Document maintain ➢ Protecting Unauthorized access ➢ Installation of security Tools ➢ Audit security incidents ➢ Entrepreneurial Skills
Course approved by	Bharathidasan University
Placement areas	➢ Banks

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	➢ Government sector ➢ DB Admin ➢ Self-employed

* T = Theory, P=Practical, H=hands on training / Aptitude / Project work / task oriented activities

Course Outline

Course Code	Paper Title	Theory / Practical	Internal Marks	External Marks	Total
DCA3301	Principles of computer applications	Theory	25	75	100
DCA3302	Create and Installation of various application tools	Practical	50	150	200
				Total	**300**

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PAPER-II

DIPLOMA IN COMPUTER APPLICATION

Course Contents – Theory

Course Code	Course Title	Theory / Practical
DCA3303	PROGRAMMING SKILL	Theory
Unit No	Modules (Theory)	T (Hrs.)
I	**UNIT I : ALGORITHMIC PROBLEM SOLVING** Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range, Towers of Hanoi.	20
II	**UNIT II : DATA, EXPRESSIONS, STATEMENTS** Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.	20
III	**UNIT-III : INTRODUCTION TO HTML AND ELEMENTS OF HTML** What is HTML - HTML Documents - Basic structure of an HTML document -Creating an HTML document - Mark up Tags -Heading-Paragraphs - Line Breaks - HTML Tags- Introduction to elements of HTML - Working with Text - Working with Lists, Tables and Frames - Working with Hyperlinks, Images and Multimedia - Working with Forms and controls	20

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IV	**UNIT IV: INTRODUCTION TO CASCADING STYLE SHEETS** Creating Style Sheet - CSS Properties - CSS Styling(Background, Text Format, Controlling Fonts) - Working with block elements and objects -Working with Lists and Tables - CSS Id and Class - Box Model(Introduction, Border properties, Padding Properties, Margin properties) - CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align,Pseudo class, Navigation Bar, Image Sprites, Attribute sector) - CSS Color - Creating page Layout and Site Designs	15
	Total	75

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SRI RAAJA RAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
KARAIKUDI

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PRACTICAL PAPER-II
DIPLOMA IN CERTIFICATE IN COMPUTER APPLICATION
Technical Analyst

Course Contents – Practical

Course Code	Course Title	Theory / Practical
DCA3304	**PYTHON AND WEI DESIGN**	**Practical**
Exercise No		**P (Hrs.)**
1	Compute the GCD of two numbers.	20
2	Find the square root of a number (Newton's method)	
3	Exponentiation (power of a number)	20
4	Find the maximum of a list of numbers	
5	Linear search and Binary search	25
6	Design a home page which will display your information i.e. Bio data.	
7	Create Hyperlinks in home page i.e educational details, Hobbies, Achievement, My Ideals etc.	30
8	Design a timetable and display it in tabular format.	
9	Design a Registration form in HTML.	30
10	Design a webpage i.e. Biodata using CSS.	
	Total	**125**

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INSTITUTE FOR ENTREPRENEURSHIP AND CAREER DEVELOPMENT

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI-620023.

Curriculum Design

Diploma in Montessori Training

Course Duration: 6 Months; Total Marks: 400; Total Credits: 20

S. No.	Course Code	Title of the Course	CIA (Internal)	Theory paper/Practical Marks(External)	Total Marks	Credits
			PART-I			
1.	DMTP1T1	Child Development and Montessori Philosophy	30	70	100	5
2.	DMTP1P1	Exercises of Practical life(School Based Practicum-I)	30	70	100	5
				Total	200	10
			PART-II			
1.	DMTP2T1	Pedagogical Aspects and Approaches in Montessori Education	30	70	100	5
2.	DMTP2P2	Exercises of Practical life(School Based Practicum-II)	30	70	100	5
				Total	200	10

CIA-Continuous Internal Assessment-Marks: 30; Attendance: 10; Assignment: 10;

Internal Exam: 10

Theory Paper Marks (External): 70

Exercise of Practical Life: TLM- Teaching Learning Materials; Marks: 30;

Practical Activity (External Marks): 70

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INSTITUTE FOR ENTREPRENEURSHIP AND CAREER DEVELOPMENT

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI-620023.

Diploma in Montessori Training

PART-I

Course Code: DMTP1T1; Course Name: Child Development and Montessori Philosophy

Objectives:

To enable the learners to

- Understand the Concept of Child Development
- Understand the Concept of Learning
- Understand the concept of Montessori Philosophy

Unit-I Child Development in Montessori Education

Child Development- concept, meaning- Needs of children at various stage - physical and motor development-cognitive development, Children develop order, co-ordination, concentration and independency at the early age, role model to protect community - freedom within the Boundary - active seekers of knowledge - self-correction, self– introspection and self evaluation, About Maria Montessori- Discoveries-Integral part of Montessori classroom approach.

Unit-II Free Learning, Health and Congenial Learning Environment

Free Learning- Definition, meaning; Health-improving their health and wellbeing; Teaching children to have sense of control; Freedom control; Free decision making-improving the skill; sensitize in work-Nature of work and time bound work. Learning environment for Montessori Education; Effective learning in congenial atmosphere; Environment promotes development on child; organized classroom; Physical Environment (layout); conceptual progressive learning (Effective use of material progress).

Unit-III Group Learning and Learning by Doing

Peer tutoring - using imitation model in Montessori classroom; mixed age class-Young learning from old- Questioning- observing the work; Repetitive learning - Reciprocal learning; knowledge enhancement to promote learning skills - social skills. learning is for physical classroom - Enhancement of Learning; Negligence of Teacher and Text in child learning - Montessori programmes; Classroom learning with objects and action; Predicting the children's interests. Teacher is a director for making boundary for child learning; sensitive interaction between teacher learner based on learner's needs and levels of aspiration; Authoritative parenting – Traditional attitudes and authoritarian attitudes.

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Course Code: DMTPIP1; Course Name: Exercises of Practical Life (School Based Practicum-I)

Introduction to exercises of practical life (Sensorial and Practical Life):

Sensorial: Sound Box

Sensorial: Touch Board

Sensorial: Taste Jar

Sensorial: Fabric

Sensorial: Colour Box.

Practical Life: Setting Dining Table

Practical Life: Grace and Courteousy

Practical Life: Hand washing

Practical Life: Folding Cloth

Practical Life: Rolling and Unrolling Mat

Practical Life: Dressing frame button

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3. Issacc Susan, "The Nursery Years", Routledge, London, 1956.
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5. Craig Grace J, and Marguerite Kermis, "Children Today", Allyn and Bacon, New Jersey, 1995.
6. Ghanta, R. and Dash, B.N. (2005). Foundations of Education. Hyderabad: Neelkamal Publications.

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INSTITUTE FOR ENTREPRENEURSHIP AND CAREER DEVELOPMENT

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI - 620023.

Diploma in Montessori Training

PART-II

Course Code: DMTP2T1;

Course Name: Pedagogical Aspects and Approaches in Montessori Education

Objectives:

To enable the learners to

- Understand the Concept of Pedagogical aspects
- Understand the Concept of Sensorial Activities
- Get awareness on Methods and approaches in Montessori Education

Unit-I Life Activity, Language and Mathematical Learning Activity Method

Practical life activities - Child Promotes activities and learn to Interact with environment; Real life projects - Promote five Motor skills, Concentration of mind and Independent nature (transferring, sorting, Personal hygiene, grooming, Dusting and sweeping). Learning to Recognize; Learning the sound variation and writing; Grammar and etymology; Group work and hand on work; learn to count the numbers; Decimal System and geometry. Individualized and abstract work.

Unit-II Vocabulary cum Storytelling, Reading and Sensorial Experience Approach

Performance of Real nature and action before artificial one; Grasping ability; Pleasurable Reading; Narrative Interaction; Loud Reading and Exploration of New facts; Pronunciation and vocabulary; Storytelling and lifelong Reading. Memorization and recognition of objects; Manipulation of letters and constructing words; Recognize and matching the Words - Secret Words, Action Words; Reading, Friendly Environment / Adaptation to Environment; Logical and Perceptual Ability; Enhancement of Visible Sensibility. Sensorial Activities Exploration of world around child through senses; Child development - Physical and Mental Exercises; Discrimination of contrast; Child's capacity to define the Quality - Colour, Weight, Shape, Texture, sound, etc.

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Course Code: DMTP2P2; Course Name: Exercises of Practical life (School Based Practicum-II)

Introduction to exercises of Practical Life (Language, Arithmetic and Culture):

Language: Rhymes

Language: Phonetic

Language: Grammar

Language: Listening and Speaking

Language: Story Telling

Language: Reading Writing

Arithmetic: Spindle Box

Arithmetic: Geometric Cabinet

Arithmetic: Number Rods

Arithmetic: Cards and Counting

Arithmetic: Snake Game

Arithmetic: Sand paper Number Tracing

Arithmetic: Pink Tower

Culture: Animals and Birds

Culture: Parts of the Body

Culture: States and Capitals

Culture: Land and Water Globe

Culture: Continent Globe

Culture: World Map

Culture: India Puzzle

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1. Francis Soundararaj, F. (1995). Teaching Spoken English and Communication Skills.Chennai:
2. Kohli, A. L. (2006). Techniques of Teaching English. New Delhi: Dhanpat Rai pub.co
3. Fletcher F.G Some lessions in mathematics OUP.
4. NCERT Brochure on themes relating to Mathematics Education.
5. Joyce., & Well., (2004). Models of Teaching. U.K: Prentice hall of India.

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INSTITUTE FOR ENTREPRENEURSHIP AND CAREER DEVELOPMENT

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI-620023.

Curriculum Design

Diploma in Guidance and Counseling

Course Duration : 6 Months; Total Marks: 400; Total Credits: 20

S. No.	Course Code	Title of the Course	CIA (Internal)	Theory/ Practical paper Marks (External)	Total Marks	Credits
		PART-I				
1.	DGCTP1	Introduction to Guidance and Counselling	30	70	100	5
2.	DGCPP1	Practical Components I	30	70	100	5
				Total	200	10
		PART-II				
1.	DGCTP2	Assessment in Guidance and Counselling	30	70	100	5
2.	DGCPP2	Practical Components II	30	70	100	5
				Total	200	10

CIA-Continuous Internal Assessment-Marks: 30; Attendance: 10; Assignment: 10;

Internal Exam: 10

Theory Paper Marks (External): 70

Exercise of Practical Components - Internal Marks: 30;

Practical Components (External Marks): 70

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Diploma in Guidance and Counselling

PAPER-1

Course Code: DGCTP1; Course Name: Introduction to Guidance and Counselling

Objectives:

To Enable the Learners to

1. Understand the concepts of guidance and counselling
2. Understand the guidance services for special children

UNIT-I CONCEPT OF GUIDANCE

Guidance-Definition, nature, functions, Importance, of Guidance-Philosophical, Psychological and Sociological. Types of Guidance – Educational, Vocational, Recreational, Civic, Social, Moral, Personal, Leadership and Health, Group and Individual Guidance. Difference between Guidance and Counselling

UNIT-II CONCEPT OF COUNSELLING

Counselling-Concept, steps, Individual and group Counselling. Approaches of Counselling-Directive Counselling, Non-Directive Counselling, Eclectic Counselling and their utility, Role of the career Master. Vocational counselling Service. Nature, Qualification of the vocational counsellor, place, setting, preparing and conducting the interview, professional ethics of a counsellor.

UNIT-III COUNSELLING SPECIAL GROUPS

Characteristics and needs of Special Groups- Socially and Economically Disadvantaged-Destitute and Orphans- Delinquents- Drop-outs-AIDS Patients-Drug Addicts and Alcoholics-Pedophiles- Sexual harassment Eve teasing- referral processes. Disabled- children with learning disability, phobia epilepsy schizophrenia delusional disorder (Paranoiac), ADHD, Slow Learner,Autism.

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Course Code: DGCPP1; **Course Name: Practical Components-I**

Assessment of Intellectual and Cognitive Abilities:

- Attention memory
- Intelligence,
- Anger,
- Attitude and
- Aptitude.

Career related Assessment:

- Aptitude and Vocational interest career search self- efficacy,
- MBTI and Holand's Vocational preference inventory.

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INSTITUTE FOR ENTREPRENEURSHIP AND CAREERDEVELOPMENT

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI-620023.

Diploma in Guidance and Counselling

PAPER-II

Course Code: DGCTP2 ; Course Name: Assessment in Guidance and Counselling

Objectives:

To Enable the Learners to

1. Understand the Testing and Non-Testing Devices in guidance service
2. Understand the guidance and counseling services

UNIT-I TESTING DEVICES IN GUIDANCE & COUNSELLING

Assessment of Intellectual and cognitive abilities: Attention memory and intelligence, anger, attitude and aptitude. Aptitude and Vocational interest career search self- efficacy, MBTI and Holand's Vocational preference inventory. Psychosocial adjustment; Anxiety, stress, depression and somatic complaints. projective and psychometric tests.

Non-Testing Devices: Rating scale, checklist and anecdotal report. Self-reporting techniques: self-expression, essays, self-description self- awareness exercises, diaries and daily schedules. Case study and case formulation. Interview - types.

UNIT-II GUIDANCE AND COUNSELLING SERVICES

Organizing Guidance service in school- Principles and importance, Role of Headmaster, Teachers, Parents and Counsellor's in organizing guidance services in school. Various guidance services- Orientation service, Student information service, Counselling service, Placement service, Occupation information service, Individual Inventory service.

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DIPLOMA IN FOOD PRODUCTION AND BEVERAGE SERVICES

Sl.No	Subject	Exam Hrs	Marks
	THEORY		
1	Food and Beverage Production	3	100
2	Food and Beverage Service	3	100
	PRACTICAL		
3	Food and Beverage Production Practical	3	75
4	Food and Beverage Service Practical	3	75
	TOTAL		350

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FOOD AND BEVERAGE PRODUCTION

Unit-I

Introduction to cookery-Aims and objectives of cooking food, Characteristics of raw materials, flavourings, seasonings, masalas ,spices & herbs used in food preparation.

Unit-II

Layout of kitchen – Kitchen organisation chart – Duties and Responsibilities of kitchen personnel – Attributes of Culinary Professionals – Interaction between F&B service and F&B production departments

Unit-III

Preparation of stock and soups, Sauce- mother sauce with recipes, - Basic Methods of cooking food - Food preparation techniques

Unit-IV

Indian cookery-Introduction, various ingredients used, utensils used, methods of cooking.

Tamilnadu – characteristics, ingredients and equipments used, recipe of popular dish.
Punjab-characteristics, ingredients and equipments used, recipe of popular dish.
Bengal- characteristics, ingredients and equipments used, recipe of popular dish.
Goa- characteristics, ingredients and equipments used, recipe of popular dish.
Kerala- characteristics, ingredients and equipments used, recipe of popular dish.
Andhra- characteristics, ingredients and equipments used, recipe of popular dish.

Unit-V

Cuisines of the world – Continental cuisine - Chinese cuisine – Indian cuisine – Srilankan cuisine - its characteristics, ingredients and equipments used. Minimum ten Dishes with recipes & its preparations for each cuisine

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FOOD AND BEVERAGE SERVICE

Unit-I

Introduction to F&B Service Department – Types of Catering Establishments –Outlets of F&B service Department - Classification of F&B Service Equipments - Glassware, cutlery, crockery, Linen.

Unit –II

Staff Hierarchy of Various F&B service outlets- Their duties and Responsibilities – Attributes of F&B Service Personnel.

Unit –III

Menu –Functions of Menu – Types of Menu –Menu compiling – French Classical Menu – Cover and Accompaniments –Types of cover –Types of meals – Types of Service - Briefing Still room- Table laying-Points to be observed, Rules for waiting at the table

Unit-IV

Classification of beverages- Alcoholic and Non-alcoholic- Introduction to Wine, Champagne, Beer and Spirits.

Unit-V

Cocktails and Mocktails –Its components –Methods of making Cocktail and Mocktail Production Process of Wine, Champagne, Beer and Spirits,

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FOOD AND BEVERAGE PRODUCTION PRACTICAL

Activity No	Menu
1	Demonstration of Cuts of Vegetables, Cuts of Fish, Cuts of Chicken,
2	Preparation of Stocks, Mother Sauces, and Soups
3	Cucumber Salad, Chicken Gravy Aloo Gobi Dry Dal Tadka Rajma Rasedar Plain Rice Rice Kheer
4	Aloo Chat Mutton Rogan Josh Baignan Bharta Veg Kofta in Palak gravy Jeera Pulao Dal Makhni Shahi Tukra
5	Green Salad Mulligatawny Soup Mutton Biryani Cucumber Onion Raita Mutton Dhalcha Potato and Peas Bhaji Bhadusha
6	Mushroom salad Aloo Paratha Butter Chicken/ Chettinad Chicken Shrimp Masala Brinjal Potato Curry Mysore Pak
7	Panneer Tikka Salad Plain Rice / Sambar Puli Kozhambu Rasam Beans & Cabbage Foogath Pappad/ Coconut Burfi
8	Zeera Pulao Chicken Moghlai Broccolli Aloo Methi Phirnee

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9	Chicken Biryani Mutton Curry Pineapple Raita Curd Rice Rasmalai
10	Mushroom Biryani Dhalcha Onion Raita Masala Fried Fish Carrot Halwa
11	Veg/ Egg Fried Rice Vegetable Pulao Roti/ Naan/ Butter Naan Panneer Butter Masala Chicken Pepper Fry Egg curry Gulab Jamun
12	Other Popular dishes from Continental Menu, Indian Regional Menus,

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FOOD AND BEVERAGE SERVICE PRACTICAL

Unit	Chapter
1	Identificication of Cultery and Crockery, Glassware and Special equipments
2	Cleaning of Service Equipments
3	Arrangement of Dummy Waiter
4	Manipulation of Spoons and Forks
5	Carrying Salver and Placing meal plates
6	Clearance of Soiled Plates
7	Laying and Relaying of Table Clothes
8	Cover Laying (A l'a carte, Table d' hote, English Breakfast, American Breakfast, Continental Breakfast covers)
9	Compiling French Classical Menu
10	Serviette Folding
11	Taking Guest Reservation
12	Receiving and Seating Guest
13	Order Taking, Processing, Sequence of Service
14	Presentation of Bill, Encashing the bill, Presenting & Collecting guest comment cards
15	Handling Guest complaints
16	Service of Alcoholic beverages
17	Compiling wine list

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