

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

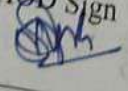

G P Kangra		SYLLABUS COVERAGE				
Department: <u>Computer Engg</u>		Subject: <u>Internet of Things</u>				
Course: <u>Diploma</u>		Duration: <u>3 years</u>				
Total Periods: <u>42</u>		Theory: <u>42</u>				
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	1-7	Introduction to IOT	Embedded systems, M2M, IOT, Characteristics of IOT, Advantages of IOT, IOT enabling technologies, Smart objects & Smart environments, IOT applications - one - Home Automation, Smart Cities, Smart Grids, Industrial IOT, Smart farming, IOT framework, IOT challenges.	IOT: Architecture & design Principles by Raj Kamal MGH.		
2.	8-15	Physical & Logical design of IOT	IoT devices - Micro Controller Unit (MCU), Transducers, Actuators, Hydraulic, Pneumatic, Electrical, Thermal, Magnetic & relay actuators, sensors - Location, Biometric, Acoustic, Environmental, Motion, Components of IOT - things, Gateway, Cloud, Analytics, User interface, Physical design of Co AP, M2M, logical design	do -		

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Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
3.	16-23	IOT architecture	of IOTs, IOT fundamental blocks, IOT Levels & Deployment templates			
4.	24-30	IOT Supporting Technologies & Applications	One M2M architecture, IOT World Forum (IoTWf) Standardized Architecture, IOT Comm. technologies: ZigBee, BLE, Wifi & 4G, RFID, NFC, IOT preprocessing, On site & off site processing, Processing off-loading			
5.	31-42	IOT Implementation	Overview of edge computing, cloud computing, Study of IOT applications in agriculture, healthcare, Smart homes, Connected vehicles, Arduino boards & Arduino Uno, - features, functional blocks, Op. volt. Analog pins, Arduino sketch, Setup & Load(), functions, Serial Monitor, Raspberry Pi - features, components, Comparison with Uno, R.P. DS, IOT COTS sensors, AWS IOT overview			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Date 01/8/25	Approved / Not approved HOD Sign 
Date	Principal Sign 

Use additional sheets (if required).

PLANNED SYLLABUS COVERAGE(Theory)

G P Kangra SYLLABUS COVERAGE		Department: <u>Computer Engg</u> , Subject <u>Intro To E-Governance</u>				
		Course <u>Diploma</u>		Duration <u>3 years</u>		
		Total Periods <u>56</u>		Theory <u>56</u>		
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	1-10		Exposure to emerging trends in ICT for the development, understanding of design & implementation of e-governance projects. e-governance life cycle	Managing IT Transformation (J. Satyanarayanan)		
2.	11-20		Need for Govt. process re-engineering (GPR), National E-governance plan (NEGP) for India, SMART govt. & thumb rules	e-Govt. The Science of Possible (J. Satyanarayanan)		
3.	21-33		Architecture & models of e-governance including PPP (Public Private Partnership). Need for innovation & change management for E-Governance. Critical success factors, Major issues including corruption, resistance for change, e-security & cyber laws. [Architecture & models of e-governance, including PPP, Need]			

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Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
4.	34-46		focusing on Indian initiatives & their impact on citizens sharing case studies to highlight best practices in managing e-Governance projects in Indian context. Visits to local e-governance sites (CSC, eSeva, Post Office, Passport Seva Kendra etc) as part of tutorials.			
5	47-56.		mini projects by students in groups - primarily evaluation of various e-governance projects -			

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		NIL			

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GPK-F-17

PLANNED SYLLABUS COVERAGE(Theory)

Department: <u>Computer Engg</u> Subject: <u>OOP Using Java</u>			
Course: <u>Program Elective-III</u> Duration: <u>6 months</u>			
Total Periods: <u>42</u> Theory: <u>42</u>			
Topic	Details	Instruction Reference	Additional Study Recommended
- 3 OOP Concepts & Java Prog. Overview	<ul style="list-style-type: none"> → Procedural vs object oriented Prog. → Advantage of OOP, Comparing OOP → Object, Class → Characteristics of OOP → History of Java, features → Java Prog. Terminology - JVM, JAR, JDK, JRE, JWS, WORA → Java Compiler, Java Interpreter → Source code, byte code coding Convention. 		
- 16 Fundamentals of Java Prog.	<ul style="list-style-type: none"> → Structure of Java Program → Comments → main(), Java tokens, keywords → Variables, scope & lifetime → Data types, literals, Global based I/O using Sys.in & out → Operators, precedence & associativity. 		
- 24 Control Statement	<ul style="list-style-type: none"> → if, if-else, if-else-if ladder → Switch-case → while, do-while, for loop → for each loop, Jump statements 		
- 32 Object-Oriented Programming in Java	<ul style="list-style-type: none"> → Class Instance, methods → Object, Constructors, Static member, final variables/methods → final classes, garbage collection → finalizer method, Packages → Access modifiers, Wrapper Class → Compile vs Run time Polymorphism → Method overloading → Inheritance, method overriding → Abstract method, Class → Multiple Inheritance using Interface 		

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Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
5. 33-42	Array, String & Exception Handling	<ul style="list-style-type: none"> → Array definition → one dimensional Array → multidimensional Array → String, Strings, escape & special, String methods → Concept of exception → Checked / Unchecked Exp. → Exception Handling → try & catch & finally blocks, using multiple catch & statements, User-defined exceptions throw & throws 			

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Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks
	NIL			

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Date:	Principal Sign: <u>[Signature]</u>

= additional sheets (if required).

G P Kangra

GPK-F-18

Practical Planning & Coverage Status

 Department: Computer Engg.
 Course: Program Elective

 Laboratory:
 Subject: OOP using Java

Sr. No.	Details of Practical	Availability of		Likely Turn/Date	Actual Date	Responsibility	HOD Sign.	Remarks
		Equipment Set up	STD Ref. Write up					
1.	To install & configure JDK on Windows/Linux. To display simple message like hello Java.	Latex Graphics System with window / Linux OS.		08/08/08				
2.	To demonstrate the use of various operators.			19/08/08				
3.	To demonstrate the use of diff. control statements.			26/08/08				
4.	To define class & its objects. To demonstrate use of constructor & finalizer method. To create packages.			02/09/08				
5.	To inherit classes from existing class & use of diff. access modifiers.			09/09/08				
6.	To demonstrate method overloading & overriding.			16/09/08				
7.	To demonstrate use of abstract method, classes & multiple inheritance using Interfaces.			23/09/08				
8.	To demonstrate the use of arrays & various string functions. & Exception handling mechanism.			03/10/08				

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Principal Signature with date

PLANNED SYLLABUS COVERAGE(Theory)

GPKE-17

P	Department: <u>Comp. Engg.</u>	Subject: <u>Introduction to IT Systems</u>			
anagra	Course: <u>Program Core</u>	Duration: _____			
LABBUS OVERAGE	Total Periods: <u>28</u>	Theory: <u>28</u>			
Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1. 1-5	Basics of Computer System	→ Block diagram of Comp System → H/W Components:- CPU, memory, CRT, LCD monitors, Keyboard, Mouse, HDD.			
6-10	Software Concepts	→ Software & its types → Operating System, types & function of OS. → Booting (Cold & warm)			
11-15	Internet Skills	→ Internet, web browser, → Search Engine, WWW → Types of Networks → Gated Portals (static & dynamic) → Intranet Portals.			
16-20	Working with MS-Word	→ File Management (create, save, print, edit, a document. → Use of HOME, INSERT, Design Layout Ribbon.			

Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
5. 21-25	Working with MS-Excel	→ Spreadsheets, Entering data into cell → merging a cell, formatting → Simple functions:- Sum, average, min, max, Percentage, round, floor, Ceiling, Conditional Formatting of cells.			
6. 26-28	Information Security.	→ Concept of Online Frauds, Threats of Online Crime → Virus Attacks → Use of Antivirus.			

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	NIL			

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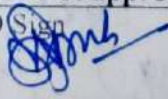
G P Kangra		Department: <u>Computer Engg</u> Subject <u>OE-I</u>				
		Course <u>Diploma</u> Duration <u>6 Months</u>				
SYLLABUS COVERAGE		Total Periods <u>56</u> Theory <u>56(OT)</u>				
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1		Unit-1: Cyber Ethics & Etiquettes	History of Internet Major Applications of the Internet - Email, www, Social Media, Online Pay- ment, Online Gaming Digital Footprints Cyber world, Digital Society & Netizen, Net Etiquettes, Cyber Ethics; Impact of the Internet on Society, Impact of Digital Technologies on Health. Govern- ment Guidelines & Digital Media Ethics Code.	Cyber laws & Ethics by Mark Grabow ski	https:// www. w3schools com.	
2		Unit-2: Basics of Cybersecu- -ity.	Need for Cyber -security, Challenges in Cybersecurity; Cybersecurity Frame- work. Cybercrime Hacking, Phishing, Fraud, Emails, Identity			

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Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
3		Unit-3: IPR.	Theft, Ransomware, Cyber Stalking/Harassment, Cyberbullying, Pornography, Cyber Terrorism, Cyber Defamation, Combatting & Prevention from Cybercrime using self-regulation; National Cyber Security Strategy. Data Protection, Right to Privacy			

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Sr. No.	Period No.	Topic Covered ¹	Instruction Reference	Additional Study recommended	Remarks

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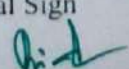
G P Kangra		Department: <u>Computer Engg</u> Subject <u>OE-I</u>				
		Course <u>Diploma</u> Duration <u>6 Months</u>				
SYLLABUS COVERAGE		Total Periods <u>56</u> Theory <u>56(T)</u>				
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
4.		Unit 4: Cyber laws in India	4 Data Protection, Intellectual Property Right (IPR), Copy- right, Patent, Trade -mark, Scope of Copyrights, Patents & Trademark, Violation of IPR, Plagiarism, Copyright Infringement Trademark Infringe- ment. Major Provisions for Cybercrime under Indian Penal Code (IPC), Indian IT Act -2000 (Sections 65, 66, 67, 69); Digital Personal Data Protection Act 2023, Intellectual Property Rights, Patent law, Copyright	Cyber laws & Ethics by Mark Grabow -ski	https:// www- cobschools. com.	

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Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			Law, Digital signatures.	do-		

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PLANNED SYLLABUS COVERAGE(Theory)

G P Kangra		Department: <u>Computu Engg.</u> Subject <u>SOFTWARE ENGG.</u>				
SYLLABUS COVERAGE		Course <u>Diploma</u> Duration <u>3 years</u>				
		Total Periods <u>04/week</u> Theory <u>56</u>				
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-8	Unit-1 (Intro. to S/w Engg.)	S/w Definitions, S/w char., S/w Crisis, Attributes of good s/w, Prog. vs product, Exploratory style of S/w dev, Shortcomings, S/w engg., SDLC, S/w process framework, framework activities- Comm'n, planning, Modeling, Construction & deployment, S/w appl'n domains System s/w, Appl'n s/w, Scientific Engg s/w, Embedded s/w, web Applications	S/w Engg. by Pankaj Jalote, Narosa Publication.	Fundamentals of S/w Engg, by Rajib Mall, PHI.	
2	9-20	Unit-2 (S/w life Cycle Models)	Classical Models- Waterfall Model, Iterative Waterfall Model, V-model, Prototyping Model, Incremental Model, Evolutionary Model, Rapid appl'n dev. (RAD), Agile dev. Models- extreme programming, Scrum, Lean, Spiral Model	do		
3	21-29	Unit-3 (S/w Project Mgmt.)	S/w Project Manager- Skills & responsibilities, project planning Sliding window planning, SPMP project planning, Project size Estimation- lines of code, fun Pt, Project estimation Techniques - empirical, Heuristic & Analytical Estimation Techniques, Expert Judgement, COCOMO, COCOMO2, Project scheduling- PERT & Gantt charts, Staffing, Risk Mgmt, S/w Conf. Mgmt.	do		

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4	30-38	Unit - 4 (Req ⁿ Analysis & specification)	Req ⁿ gathering, Req ⁿ Elicitation Tech, Interviews, surveys, Questionnaire Brainstorming, Req ⁿ analysis, S/W Req ⁿ spec. (SRS), Role, char., Final & non final req ⁿ , Traceability.		do	
5	39-47	Unit - 5 (S/W design)	Overview of design process, Outcome of design process, abstraction, design patterns, Refactoring, Classification of design Methodologies, Cohesion & coupling, S/W design Approaches - fun oriented object oriented, User Interface design, User Exp.		do	
6	48-56	Unit - 6 (Coding & Testing)	S/W coding, Coding Standards, Code review-code walkthrough, Code-inspection S/W documentation, Internal & external doc, S/W Testing, Testing activities, Unit Integration, sys & Acceptance testing, Black box & white box testing.		do	

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