



GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

SOFTWARE PROGRAMMER (Web Developer)

[Duration: 18 Months + 06 Months (OJT)]

CRAFTSMEN TRAINING SCHEME (CTS)

(Flexi MoU)

NSQF LEVEL- 4



SECTOR – IT & ITES



SOFTWARE PROGRAMMER (Web Developer)

(Online Mode)

(Non-Engineering Trade)



CRAFTSMEN TRAINING SCHEME (CTS)

Skill India
(Flexi MoU)

कौशल भारत NSQF LEVEL - 4 कौशल भारत

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

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1. COURSE INFORMATION

Flexi-MoU is one of the pioneer programs under DGT on the basis of the MoU in between DGT & Navgurukul Foundation for Social Welfare, 354, Sector 47, Gurgaon – 122018 for propagating vocational training to allow industries to take advantage of various schemes for conducting a training program in higher employment potential courses according to needs of industries. The concept of Flexi- MoUs was introduced in June-July 2014. DGT and Navgurukul Foundation for Social Welfare have decided to sign this memorandum of understanding to provide an opportunity to the youth to acquire skills related to the software industry through a specially designed "Learn and Earn" approach consisting of a mix of theoretical and On-the-Job Training (OJT) components and hence improve their employability potential to contribute in the overall growth of software programming and information technology skills which is a high employment potential domain.

During the 18 months duration, a candidate is on subjects Professional Skill, Professional Knowledge, and Employability Skills. In addition to this, a candidate is entrusted to make/do project work and Extra Curricular Activities to build up confidence. The practical skills are imparted in a simple to complex manner & simultaneously theory subjects are taught in the same fashion to apply cognitive knowledge while executing tasks. First one year or more students have to stay on a residential campus. The delivery of the course is online through the Merakilearn.org platform.

The content broadly covers skills in coding and software development components and the software industry.

2. TRAINING SYSTEM

2.1 GENERAL

The Directorate General of Training (DGT) under the Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the needs of different sectors of the economy/ Labour market. DGT is futuristic in preparing the prospective Indian workforce in building skills and capabilities as per the needs of the industry. In this quest, it has changed the paradigm of growth to job-oriented growth by partnering with industry to be an enabler of responsible, sustainable, and inclusive growth. Towards this end, DGT signed this MoU with the Navgurukul Foundation for Social Welfare.

Navgurukul Foundation for Social Welfare shall conduct courses in pan-India locations. Navgurukul Foundation for Social Welfare will ensure that not less than 50% of trainees are placed with Navgurukul Foundation for Social Welfare or its business partners for not less than six months duration. It will also ensure the eligible trainees take up Apprenticeship / higher education in suitable streams and shall also guide the students to become Entrepreneurs. Navgurukul Foundation for Social Welfare will strictly follow the policy guidelines for Flexi - MoU as in place from time to time. No deviation for the same would be permitted.

Broadly candidates need to demonstrate that they are able to:

- Use a computer and write code
- Knowledge of coding practices to write suitable code
- Be able to build computer applications or programs as per the requirements

2.2 PROGRESSION PATHWAYS

- Can work as a software developer in any corporate or start-up-based company.
- Able to work as a freelancer and lead each team.

2.3 COURSE STRUCTURE

The table below depicts the distribution of training hours across various course elements during a period of 18 months+06 months OJT:

S No.	Course Element	Notional Training Hours
1	Professional Skill (Trade Practical)	1620
2	Professional Knowledge (Trade Theory)	390
3	Employability Skills	180

5	On the Job Training	1050
	Total	3240

2.4 ASSESSMENT & CERTIFICATION

- I. Conducting training of selected candidates is the sole responsibility of the industrial Training Partner (ITP).
- II. Assessment will be done online by ITP. The practical and formative assessment shall be conducted by ITP, and DGT will issue e-NTC certificates based on relevant proofs of course completion and employment.
- III. ITP must refer to the latest examination reform guidelines issued by DGT dated 4th October 2018 any changes or revisions to the same shall be applicable to the Flexi-MoU scheme.
- IV. For practical examination and formative assessment, ITP has been given the flexibility to design the questions, assess the candidates, and upload their marks in the scheme portal.
- V. Students, who have successfully appeared in the final exam after completion of the course, are eligible to register as apprentices.

The trainee will be tested for his skill, knowledge, and attitude during the period of the course and at the end of the training program as notified by the Government of India (GoI) from time to time.

2.4.1 PASS REGULATION

The minimum passing grade would be C.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration should be given while assessing teamwork, creative collaboration, and problem-solving approaches.

The assessment process (which is online) comprises the assignments submitted for every milestone, followed by final interviews. Professionals working in the industry do the final interviews and assign them appropriate grades. Annexure-1 contains industry references and Annexure-2 contains a list of organizations where our alumni have been placed and hence where we source our interviewers from.

For assigning grades, there would be a combination of interviews and coding examinations that would be given to the students. The students will be assigned one of the A, B, C, N grades

Performance Level	Evidence
(a) Weightage in the range of C (Average) to be allotted during the assessment	
Work that demonstrates attainment of an acceptable standard of coding practices and logic with occasional guidance	The ability of the student to be able to program and use logical skills with occasional guidance in solving problems
(b) Weightage in the range of B (Above Average/Good) to be allotted during the assessment	
Work that demonstrates attainment of a reasonable standard of coding practices and logic with little guidance	<p>The ability of the student to be able to program and use logical skills with little guidance in solving problems</p> <p>The student should be able to divide complicated problems into smaller problems</p>
(c) Weightage in the range of more than A (Very Good) to be allotted during the assessment	
Work that demonstrates attainment of a high standard of coding practices and logic with minimal or no support	<p>The ability of the student to be able to program and use logical skills with minimal or no support in solving problems</p> <p>The student should be able to divide complicated problems into smaller problems</p> <p>The student should be able to think of proper architecture in order to come up with a way of organizing the code into smaller modules</p>

Computer Programmer/Software Engineer

Computer Programmer converts data from project specifications and statements of problems and procedures to create or modify computer programs. Prepares or receives from SYSTEMS ANALYST, detailed workflow chart and diagram to illustrate a sequence of steps that the program must follow and describe input, output, and logical operations involved. Analyzes workflow charts and diagrams, applying knowledge of computer capabilities, subject matter, and symbolic logic. Confers with supervisor and representatives of departments concerned with programming to resolve questions of program intent, data input, output requirements, and inclusion of internal checks and controls. Converts detailed logical flow chart to a language that can be processed by a computer. Enters program codes into the computer system. Inputs test data into the computer. Observe the computer monitor screen to interpret program operating codes. Corrects program errors, using methods, such as modifying the program or altering the sequence of the program steps. Writes instructions to guide operating personnel during production runs. Analyses, reviews, and rewrites programs to increase operating efficiency or to adapt the program to new requirements. Compiles and writes documentation of program development and subsequent revisions. May train workers to use the program.

May assist COMPUTER OPERATORS to resolve problems in running a computer program. May work with SYSTEMS ANALYST to obtain and analyze project specifications and flow charts. May direct and coordinate the work of others to write, test, and modify computer programs.

Computer Programmers, Other

Computer Programmers, Others are computer programmers who write, test and maintain computer programs to meet the needs of users of computer systems and all other Computer Programmers not elsewhere classified.

Reference NCO-2015:

- a) 2512.0100 - Computer Programmer/Software Engineer
- 2514.9900 - Computer Programmers, Other

4. GENERAL INFORMATION

Name of the Trade	Software Programmer (Web Developer)
Trade Code	DGT/7022
NCO - 2015	2512.0100, 2514.9900
NSQF Level	Level-4
Duration of Craftsmen Training	18 Months + 06 Months (OJT)
Entry Qualification	Passed 10 th Class Examination with Aptitude Test
Minimum Age	Minimum 16 years of age.
Unit Strength (No. Of Student)	Dharamsala: 60 Bangalore: 120
Space Norms	70 sqm
Power Norms	3.45 KW
Instructors Qualification for	
1. Software Programmer Trade	<p>The course is delivered online through an in-house platform available for everyone to use at merakilearn.org.</p> <p>Professionals working in the industry do the final interviews before the students are made eligible to sit in placements. Annexure-1 contains industry references and Annexure-2 contains a list of organizations where our alumni have been placed and we source interviewers from.</p>
2. Employability Skill	<p>The course is delivered online through an in-house platform available for everyone to use at merakilearn.org.</p> <p>Professionals working in the industry do the final interviews before the students are made eligible to sit in placements. Annexure-1 contains industry references and Annexure-2 contains a list of organizations where our alumni have been placed and we source interviewers from.</p>
List of Tools and Equipment	As per Annexure – III

5. NSQF LEVEL COMPLIANCE

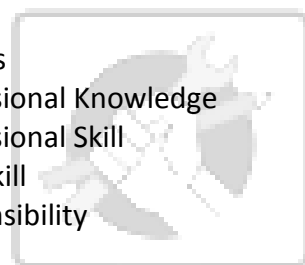
NSQF level **Software Programmer (Web Developer)** trade under CTS (Flexi MoU): **Level -4.**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

- a. Process
- b. Professional Knowledge
- c. Professional Skill
- d. Core Skill
- e. Responsibility



The broad learning outcome of **Software Programmer (Web Developer)** trade under CTS (Flexi MoU) mostly matches with the Level descriptor at Level- 4.

The NSQF Level-4 descriptor is given below:

Level	Process Required	Professional Knowledge	Professional Skills	Core Skills	Responsibility
Level 4	Work in familiar, predictable, routine, situation of clear choice.	Factual knowledge of field of knowledge or study.	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts.	Language to communicate written or oral, with required clarity, skill to basic Arithmetic and algebraic principles, basic understanding of social political and natural environment.	Responsibility for own work and learning.

6. LEARNING OUTCOME

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

6.1 GENERIC LEARNING OUTCOMES

1. Familiarise with Programming
2. Dry Run code by using paper and a pen
3. Familiarise with Conditional Operators
4. Use loops to write programs that can do repetitive tasks
5. Use arrays or lists to write programs that can store information in an organized manner
6. Use functions to write succinct programs with names assigned to code blocks
7. Familiarise with the use of dictionaries and to be able to use the dictionary data structure to store information
8. Develop basic projects with Python/JS to ensure a sound understanding of using multiple files based code architecture and other code practices
9. Develop Advanced Python/JS project to scrape the web and learn concepts on code architecture and industry-accepted coding principles and practices
10. Apply the knowledge of Javascript to implement the programming concepts like loops, lists, functions, etc. in Javascript

6.2 SPECIFIC LEARNING OUTCOMES

11. **NodeJS:** Apply NodeJS processes for many requests at the same time and how the Asynchronous programming model works.
React: Familiarize with basic HTML tags, CSS formatting, and form validation in HTML to create web pages
12. **NodeJS:** Create, Read, Update and Delete data in a file and create APIs.
React: Create a website using HTML, js, and CSS.
13. **NodeJS:** Create MySQL database and best practices to create, read and make changes to stored data.
React: React Basics – Familiarize the basis of ReactJS and how to use functions and class components.
14. **NodeJS:** Build SQL queries using Knex and creating blueprints of JavaScript objects using Joi
React: Familiarize with the component's life cycle and how to create and finish it.

6.3 EMPLOYABILITY SKILLS OUTCOMES

15. Prepare curriculum vitae and follow the standard measures to use to make it short and perfect with proper cover letter.
16. Project 1- Perform project based on web development using the technologies of HTML, CSS, js and synchronize the backend and frontend coordination to make websites.
17. Project 2- Perform hosting a website on the server and check user authentication and JWT.
18. Face at least 2 Interviews done by alumni which helps in clearing the ambiguity of the tech stack and prepare for future technical interviews and group discussions.



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7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

FOR GENERAL PROGRAMMING OUTCOMES	
LEARNING/ ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
Familiarise with Programming	Familiarise about what the computer is and how they are working. Familiarise with programming and its implication in real life.
	Use variables and write proper names of variables with the right datatypes
	Use constant value and its implementation
	Convert a value from one type to another and be able to find the scope where conversion is needed.
	Use proper operators in the right way and can write complex expressions using different operators.
	Familiarise with the code and understand others' code.
	Debug by using pen and paper.
Dry Run code by using paper and a pen	Acquainted with the flow of executions of the programs.
	Build logic on various parameters and write complex programs using operators and make conditions on them.
	Familiarise with the conditional statements for the logic.
	Correct/ Debug given codes on the above skills and implement best practices that have been learned previously.
Familiarise with Conditional Operators	Use nested conditions that can be used in breaking the bigger problems with multiple conditions to the smaller problems.
Use loops to write programs that can do repetitive tasks	Iterate on arrays, lists, and other collections using for and while loops.
	Perform nested iterations.
	Familiarise with the flow and syntax of for and while loops
	Use a break, continue and pass statements.
Use arrays or lists to write programs that can store	Write a multidimensional array and iterate on values with various conditions. Dynamically manipulate array or collections

information in an organized manner	
Use functions to write succinct programs with names assigned to code blocks	Break the program into different parts and be able to write functions for each part and chain those functions. Write functions with different parameters and return types.
	Write programs with various parameters and will be able to understand the difference among them.
	Use anonymous functions when required
	Familiarise with calling functions and when to terminate it.
	Familiarise with the use of global variables and local variables.
	write and call functions according to need.
Familiarise with the use of dictionaries and to be able to use the dictionary data structure to store information	Differentiate between primitive and nonprimitive data types and their different uses.
	Store key-value pairs using the dictionary.
	Use in real life by making projects like login/signup.
	Write programs to create files with different extensions and use and manipulate them as needed.
Develop basic projects with Python/JS to ensure a sound understanding of using multiple files based code architecture and other code practices	Split code across various files, use dictionaries, call APIs, etc.
	Familiarise with the stack and how does it work?
Develop Advanced Python/JS project to scrape the web and learn concepts on code architecture and industry-accepted coding principles and practices	Extract data from complex websites using some Python/JS library.
	Extract data from various websites and will map those data with various parameters.
Apply the knowledge of Javascript to understand how to implement the programming concepts like loops, lists, functions, etc. in Javascript	Write proper names of variables with the right data types in javascript. Familiarise with the need for constant value and their implementation Convert a value from one type to another and find the scope where conversion is needed. Use proper operators in the right way and write complex expressions using different operators.

	<p>Build logic on various parameters and write complex programs using operators and make conditions on them.</p> <p>Iterate on arrays, lists, and other collections, write a multidimensional array and iterate on values with various conditions and dynamically manipulate array or collections</p>
	<p>Use the let and const keyword with block scope, write arrow functions which help developers to write neat and clean code, unpack values from arrays, properties from objects, into distinct variables and be the master of using sets and maps in ES6</p>

ASSESSMENT CRITERIA (FOR STACK SPECIFIC LEARNING OUTCOMES)		
Learning Outcome	Assessment Criteria NodeJS	Assessment Criteria React
<p>NodeJS: Apply NodeJS processes for many requests at the same time and how the Asynchronous programming model works.</p> <p>React: Familiarise with basic HTML tags, CSS formatting, and form validation in HTML to create web pages</p>	Use the callback function in any problem.	Familiarise with basic HTML like tags, elements, classes, id, div, and span, etc.
	Detect when a promise is required in their program.	Familiarise about basic CSS like giving color, size, position, etc.
	Identify where chaining is used.	Add validation for any form.
	Familiarise with async keywords return in a function.	
	Familiarise with using await without the async keyword	
<p>NodeJS: Create, Read, Update and Delete data in a file and creat APIs.</p> <p>React: Create a website using HTML, js and CSS.</p>	Read, delete, put and write data in a file.	Familiarise with classes and grid etc.
	Use these methods for crud operation.	Familiarise with how to create a website using htm, css, and js.
	Create APIs for a given platform	
<p>NodeJS: Create a MySQL database and best practices to create, read and make</p>	Create a database.	Familiarise with the basics of react js.
	Create tables in a database.	Use function and class

<p>changes to stored data.</p> <p>React: React Basics – Familiarize the basis of ReactJS and how to use functions and class components.</p>		components according to the requirement and props and states also.
	Insert data in the database.	
	Select data from the table.	
	Familiarise with where it is used for particular data.	
	Sort the query.	
	Delete tables.	
	Drop tables.	
	Update the table.	
	Retrieve records from one or more tables in a database.	
Use joins.		
<p>NodeJS: Build SQL queries using Knex and creating blueprints of javascript objects using Joi.</p> <p>React: Familiarise with the component's life cycle and how to create and finish it.</p>	Talk about these query builders for myself.	Familiarise with the component's life cycle, how it is created and how to finish it.
	Familiarise with the queries of knex.	

ASSESSMENT CRITERIA (FOR EMPLOYABILITY SKILLS OUTCOMES)

Learning Outcome	Assessment Criteria
<p>Prepare curriculum vitae and follow the standard measures to use to make it short and perfect with proper cover letter.</p>	Make curriculum Vitae in the PDF format
	Familiarise with the proper format of CV.
	Make projects related to the specific technology stack
	Write a cover letter in an impressive and effective manner
	Verify your CV among your colleagues.
<p>Perform project based on web development using the technologies of HTML, CSS, js and synchronise the backend and frontend coordination to make websites.</p>	Familiarise with the importance of working in a team and how to contribute.
	Design wireframes
	Use operations like GET, CREATE, PUT, DELETE

	Make responsive web UI using HTML/CSS & Javascript
	Familiarise with how interactions take place between the backend & frontend
Perform hosting a website on the server and check user authentication and JWT.	Work in sprints/timebox and be able to use tools for tracking the development.
	Familiarise with how to host an application on the server
	Implement social authentication and JWT .
	Divide the project into chunks and deliver it on time
Face at least 2 Interviews done by alumni which helps in clearing the ambiguity of the tech stack and prepare for future technical interviews and group discussions.	Thorough understanding of the project flow and purpose
	Familiarise with the core understanding of the respective stack
	Receive proper feedback from the interviewer
	Perform Strong communication
	Use technical jargon while answering the questions

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SYLLABUS (FOR GENERAL PROGRAMMING OUTCOMES)		
Hours.	Reference Learning Outcome	Syllabus
Professional Skill 100 hrs	Familiarise with programming	Programming: What is a program, coding, programming languages, working of the computer,
Professional Knowledge 20 hrs		What is an algorithm and what is the flowchart and flow of execution.
		Variables: What are variables, Initialization, Naming Convention, Scope of variables, Experimental Debugging
		Constants: What are constant, When to use constant
		Data Types:- What are data types, type conversion
		Operators:- What is operator and operands, Order of Operation, expression and statements, conditional operators(and, or, not)
Professional Skill 70 hrs	Dry Run code by using a paper and a pen	Make the dry run of the pseudocode even before writing the whole code.
Professional Knowledge 10 hrs		Reviewing the code with the peer and cross checking each other's code with dry running both the codes.
Professional Skill 100 hrs	Familiarise with Conditional Operators	Conditional Statements:- What are conditional statements, how to use If, if else, switch case.
Professional Knowledge 20 hrs		When to use Chained and nested conditional statements.
		Solving various numerical problems based on conditions.
Professional Skill 110 hrs	Use loops to write programs that can do repetitive tasks	Iteration: while loop and for a loop. Nested iteration
Professional Knowledge 40 hrs		

<p>Professional Skill 110 hrs</p> <p>Professional Knowledge 30 hrs</p>	<p>Use arrays or lists to write programs that can store information in an organised manner</p>	<p>Array or Lists- What is list, accessing an element from list, Iteration on list using for loop and while loop, conditions with loop, other operation on a list like adding an element, deleting an element etc</p> <p>Debugging skills- Debugging some codes by implementing best practices</p>
<p>Professional Skill 115 hrs</p> <p>Professional Knowledge 30 hrs</p>	<p>Use functions to write succinct programs with names assigned to code blocks</p>	<p>Introduction: What is Function, Why do we need to write a function</p> <p>Arguments in Python/JS: Pass by Reference or Pass by Value, Default arguments, Variable-length arguments, Keyword Arguments</p> <p>Anonymous Function</p> <p>Recursive function</p> <p>Scope of variable in function (Local and Global)</p> <p>Calling a function</p>
<p>Professional Skill 120 hrs</p> <p>Professional Knowledge 30 hrs</p>	<p>Familiarise with the use of dictionaries to be able to use the dictionary data structure to store information</p>	<p>What is a dictionary and accessing elements of a dictionary?</p> <p>Editing the dictionary like adding key-value pairs and updating them.</p> <p>Iterating through the key and value pairs of the dictionaries.</p> <p>Project:- KBC Game</p> <p>Files:- Project on working with files</p>
<p>Professional Skill 120 hrs</p> <p>Professional Knowledge 30 hrs</p>	<p>Develop basic projects with Python/JS to ensure a sound understanding of using multiple files based code architecture and other code practices</p>	<p>Hangman Game: Introduction of Hangman, Setting Up, Looping, Lives, Hangman Image, Available Letter, Invalid input, Game Won, Hint, Difficult level, Lots of Words.</p> <p>Request Course: Introduction of Request, Calling AnApi, Understanding Json, Using Json, Slug.</p> <p>Recursions: Introduction of recursion, Simple series, Factorial, Sum of a List, Palindrome, Fibonacci series, Fibonacci Advanced, Binary search, Calculate, Nested Lists, Nested Lists Grammar</p>
<p>Professional Skill 110 hrs</p> <p>Professional Knowledge 20 hrs</p>	<p>Develop Advanced Python/JS project to scrape the web and learn concepts on code architecture and industry-accepted coding principles and practices</p>	<p>Introduction:- Introduction Web Scraping and Project</p> <p>Tasks:- Scraping the data from some websites</p>
<p>Professional Skill 120 hrs</p>	<p>Apply the knowledge of JavaScript to understand how to implement the programming</p>	<p>Javascript:- variables, operators, object, data types, events, array, methods, loops</p> <p>ES6:- Block-Scoped Let and Const, Arrow</p>

Professional Knowledge 30 hrs	concepts like loops, lists, functions, etc. in JavaScript	functions, Classes, Template Literals, Additional String Methods, Destructuring, Array Improvements, Symbols, Promises, Default function arguments i.e. default parameters and default values, Generator, Proxies, Object literal updates, Sets, WeakSets, Maps, and WeakMaps.
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Students have to choose one of the stacks - NodeJS or React for the next part of the syllabus.

SYLLABUS (FOR STACK SPECIFIC LEARNING OUTCOMES)			
Hours.	Reference Learning Outcome	Syllabus NodeJS	Syllabus React
Professional Skill 130 hrs Professional Knowledge 30 hrs	NodeJS: Apply NodeJS processes many requests at the same time and how Asynchronous programming model works. React: Familiarise with basic html tags, css formatting and form validation in html to create web pages	Callback:- 1. What is a callback? 2. Application of Callbacks	HTML:- Getting Start html, Uses of html, Identifying Divisions & Spans, Using Text-Based Elements, Building Structure, html5
		Promises:- 1. How do you create a Promise? 2. How do you change the status of a promise? 3. How do you listen for when the status of a promise changes?	CSS:- Getting Start Css, Introduction, Color, backgrounds, Fonts, Tests, Image, Link, Border, Designing, List
		Chaining	Project:- Validation html from, WhatsApp page, FaceBook login and sign-up page
		async functions return a promise	
		await without async is bad	
Professional Skill 130 hrs Professional Knowledge 30 hrs	NodeJS: Create, Read, Update and Delete data in a file and create APIs. React: Create a website using html, js and css.	Introduction:- CRUD, (Read CRUD, Create CRUD)	BootStrap:- Introduction of BootStrap and basic.
		CRUD operations:- 1. GET 2. POST 3. PUSH 4. DELETE 5. UPDATE	Project:- Navgurukul'sWebSite
		Project:- API of a an ed-tech platform	
Professional Skill 120 hrs Professional	NodeJS: Create MySQL database and best practices to create, read and make changes to stored data.	Create Database	Main Concepts:- Hello World, Introduction of JSX, Rendering Elements, Components, and Props,

Knowledge 30 hrs	React: React Basics - Familiarize the basics ReactJS and how to use functions and class components		State and Lifecycle.
		Create Table	Components and Props:- Function and Class Components, Rendering a Component, Composing Components, Extracting Components, Props are Read-Only,
		Insert Into	
		Select From	
		Where	
		Order By	
		Delete	
		Drop Table	
		Update	
		Limit	
Professional Skill 130 hrs Professional Knowledge 30 hrs	NodeJS: Build SQL queries using Knex and creating blueprints of javascript objects using Joi. React: Familiarise with the component's life cycle and how to create and finish it.	Introduction:-Knex, Joi	Main Concepts:- Hello World, Introduction of JSX, Rendering Elements, Components and Props, State and Lifecycle.
		Knex:- 1. Setting up Knex.js 2. Database version with Knex.js 3. Knex.js creating table 4. Knex.js inserting data 5. Knex.js selecting all rows 6. Knex.js restricting output with WHERE 7. Knex.js ordering rows	
		Joi:- 1. Node.js Express and Joi 2. Building a middleware 3. Support Router and Query parameters 4. Adding query parameters support 5. Adding router parameters support	

SYLLABUS (FOR EMPLOYABILITY SKILLS OUTCOMES)		
Hours.	Reference Learning Outcome	Syllabus
Professional Skill 20 hrs	Prepare curriculum vitae and follow the standard measures to use to make it short and perfect with proper cover letter	Can make Curriculum Vitae in pdf format
Professional Knowledge 15 hrs		Formating should be proper and cross verified
		Cover letter should be short and impressive
		Grammar and spelling must be appropriate
Professional Skill 160 hrs	Perform project based on web development using the technologies of HTML, CSS, js and synchronise the backend and frontend coordination to make websites	Should be able to work in a team.
Professional Knowledge 10 hrs		Able to discuss and frame the structural flow of project
		Implementing basics crud operation using node
		Able to make responsive and dynamic UI.
		Connecting server-side and client-side.
Professional Skill 160 hrs	Perform hosting a website on the server and check user authentication and JWT.	Scrum methodology.
Professional Knowledge 10 hrs		Deploy full fledged web application on the server.
		Understanding business logic and its Implementation.
		Implement authentication and authorization and make the app secure.
		Understanding of how to deliver a project within pre decided timelines.
Professional Skill 40 hrs	Face at least 2 Interviews done by alumni which helps in clearing the ambiguity of the tech stack and prepare for future technical interviews and group discussions.	Able to describe projects and its implementation with examples.
Professional Knowledge 20 hrs		Basic understanding of the stack on which a student is working.
		Get feedback and work on that.
		Should communicate well with the Interviewer.
		Use technical words while Interview.

Annexure-I

Letter of Recommendation for Navgurukul

*By Rishin Chakraborty,
Dean, Mindtree Global Learning Center
Bhubaneswar, Odisha
18 June 2019*

Navgurukul, a social enterprise based in Bangalore and Dharamshala, has the mission of preparing young school dropouts for a professional IT career. Mindtree, an Indian IT company, recruited five of them, breaking many age-old stereotypes with this bold step.

Annu, one among those five hires, is a 20-year-old from Kishanganj, Bihar. Kishanganj, a small town in the so-called Chicken's Neck of India, may be a forgettable name, but one would take only a few minutes to discover how unforgettable a personality young Annu is. Kajal, another alumni of Navgurukul, is a 18 year old innocent looking girl whose father is a rickshaw puller and mother a domestic cook. By all means, this was classic case of unconventional hiring.

Not that such recruitment didn't happen in the past, but what makes this different in the Indian context is the fact that the new recruits joined in the same position, same salary, same career progression matrix as did those with engineering degrees. You get recognized for your skills, learning ability, potential – not your degree!

We asked ourselves some simple questions. How many people with degrees have found a relevant job? And if we do not find a good answer, is it time to reflect?

Personally, I am quite intrigued by people who have been successful in the knowledge industry, without any formal education.

In my quest to find a credible answer to the job-without-degree question, I started following avant-garde organizations, reading articles and meeting people who have worked on this. One such meeting was with Manish Jain in 2017 that gave me a lot of purpose and motivation. Manish is a leading global voice for the unschooling movement. After getting to know about the progressive learning model in Mindtree Kalinga that has self-learning and skill demonstrations as the basis, he challenged me to recruit people with required skills but without degrees. Manish cited examples of top global companies such as Google, Apple, Ernst & Young, IBM, Microsoft, Deloitte among others who have been hiring from this typically untapped pool of skilled resources.

Later that year I met Abhishek and Rishabh, the co-founders of Navgurukul. These two bright young gentlemen were getting started with their novel initiative of offering a yearlong intensive program at par with Bachelor of Technology, Computer Science or Information Technology to young adults from underserved communities. That too without charging them, completely free and with a promise of better placements. However, the best part was that Navgurukul didn't care about academic credentials of the candidates as long as they had the passion,

competence and attitude to learn software engineering.

After some serious socializing at Mindtree's management level, we onboarded 5 fellows from Navgurukul, of which just one was a college graduate and rest were standard 10 or 12 pass students with an interest in programming.

Like other new hires, these 5 youngsters went through Mindtree's 3 month long onboarding program called Orchard at the Kalinga campus. From the very beginning what stood out was their determination to prove themselves and a sense of obligation towards fellow Navgurukul students; they knew that if they performed well in the program not only will they secure their jobs but would lay the foundation for future hiring from their tribe. At the end of 3 months, they proved a point - they were definitely at par with the engineering graduates; in many aspects thoroughly outshining them. Mindtree was impressed with their confidence, resolve and maturity.

In the last few months, working on real projects, this new and promising category of workforce has duly earned trust and respect of their managers and team members through sheer focus and hard work. As Mindtree tasted success in this mostly unexplored hiring method, India Inc. is quickly realizing the potential of this win-win-win strategy. The corporate world has long found itself unfairly bound to the highly unemployable talent that comes from the University system. So, this new skills-based hiring concept definitely is a gush of fresh air as it also allows them to increase diversity within the organization. For the huge number of sufficiently competent young adults without an Engineering degree, they can finally see light at the end of the tunnel. The Engineering colleges, taking a cue from these next generation outfits such as Navgurukul, can identify and bridge their deficit areas in terms of course coverage and pedagogy.

With this welcome disruption in the job market, conversation in the corporate corridors is silently changing from college degrees to real skills. If we shed the verbiage of unwanted knowledge and information and only concentrate on the essentials we will be going somewhere. Remember that during Paandav and Kaurav's trial of skills - Dronacharya didn't even allow others to take an aim. Only Arjuna was permitted as he was focused.

LAYERIV

NavGurukul
Avalahalli Huskur Panchayath
Sarjapura Hobli
Anekal Taluk Dist
BENGALURU
Karnataka 560099

9 July 2021

Dear Abhishek,

Re: Letter of Recommendation

At Layer IV, we believe that all decisions within life sciences will be based on data. Our mission is to build useful tools for the life science community to advance discovery, creation and commercialisation. We built Insciter.com as a tool for biotech investors to help them source, diligence and build companies.

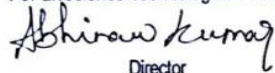
Layer IV was founded by Rohit Swaroop, a UCL trained doctor and investment banking professional (Morgan Stanley and Evercore). We are based in London and Bangalore and employ a team of ten across life science, data science and technology (alumni from IIT, Yale, Accenture, etc).

To help us overcome the complex challenges we face daily, we look for talented individuals, with a desire to learn and the courage to take on new and difficult problems. NavGurukul has shown us students who not only have technical and coding skills, but the hunger to grow and ability to make an impact from their first day. Yogendra is a perfect example. He showed the skills and maturity far beyond his age. You can see his contribution on Insciter.com.

We would be delighted to continue our partnership with NavGurukul and offer our recommendation of NavGurukul students to other organizations.

Yours,

For Livscience Technologies Pvt. Ltd.



Director

Head of Bangalore Office, Layer IV



Letter of Recommendation

NavGurukul
Avalahalli Huskur Panchayath
Sarjapura Hobli
Anekal Taluk Dist
BENGALURU
Karnataka 560099

12 Jul 2021

Dear Abhishek,

HyperVerge is an AI company with offices in the US, India (Bangalore), and SEA (Ho Chi Minh and Jakarta). We started as a research group in 2010 at IIT Madras and got into AI-assisted digital KYC in 2017. Since 2019, we have done 410 million+ digital KYC checks - the largest in the country. Other than KYC, we have solutions in fraud prevention, risk assessment, and also in geospatial data analysis. Some of our clients are - Jio, Vodafone, SBI, Bajaj Finserv, L&T Finance, FE Credit (Vietnam), Krazybee.

The way we see it, we're building a rocket ship from scratch. And we're always looking for excellent people to join our team - first-principle thinkers with a bias for action; full of positivity and energy; great at work and good at heart. Also, we have a strong belief in creating a positive impact, contributing to the world and building a company that will outlast our lives. Navgurukul has given us access to such talent.

All the nine learners who we offered a fellowship from NavGurukul are highly driven individuals who, not only have technical and coding skills, but the hunger to learn, grow and given the right opportunity, can create unparalleled impact. They have shown grit and perseverance far beyond their age and the lack of a formal degree hasn't stopped them from demonstrating their skills and abilities. We have also offered Dhanashri an offer as a Support Engineer and we see immense potential in her to grow and become a leader within the organisation and beyond.

We would be delighted to continuing our partnership with NavGurukul and offer our recommendation of NavGurukul students to other organizations.

Warm Regards,

A handwritten signature in blue ink that reads 'Kishore'.

Kishore Natarajan
Co-Founder & Director of Hiring

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Twig Labs Private Limited

Registered address: 6/748, Sector 6, Jankipuram Extension,
Lucknow-226031, Uttar Pradesh
CIN: U72900UP2021PTC140500

Contact: +91 9517622867 | Email: hi@leapclub.in

To Whomsoever It May Concern,

Twig Labs Private Limited (<https://leapclub.in/>) is a curated marketplace for urban families to order fresh, organic & healthy groceries over WhatsApp. The company delivers pesticide-free & preservative-free groceries within 12 hours of harvesting or baking. It has been founded by IIT Delhi alumni and backed by global marquee investors including Y-Combinator.

We are a team of 12 people including 3 NavGurukul alumni. One of them works in the capacity of full stack developer (Pratik Deshmukh) and the other two (Sana Praveen) and Vicky Mandal) as operations associate.

It has been a real pleasure to work with them. They are quick learners and take full ownership of their work. Pratik has been with us for around 2 years now and has been able to build our backend system with minimal supervision. He has a knack for problem solving, excellent coding skills and is quick to pick up new skills on the job. Even without a formal degree, he has been able to pick up new programming languages and frameworks and his foundations are strong.

Sana and Vicky are an essential part of our operations team. Despite being very young, they have taken on the role of training new team members over the past few months. This shows their excellent communication skills and tremendous self confidence.

We are looking to add more NavGurukul alums to our team as we grow. It is very clear to us that NavGurukul has found a scalable way to impart skills to their students that are critical to succeed in the industry - technical skills, logical thinking, communication skills and ability to learn on their own on the job. We have found NavGurukul alumnis to be independent and self-confident individuals who are ambitious about their professional growth.

For any further questions, please feel free to reach out to me on shubham@leapclub.in.

Regards,



Shubham Bansal
CEO, Twig Labs Private Limited
Email: shubham@leapclub.in
Date: July 9, 2021



3Embed Software Technologies Pvt. Ltd.

email: info@3embed.com www.3embed.com

TO WHOMSOEVER IT MAY CONCERN

Date: 9th July 2021

Subject: Letter of Recommendation from Appscrip

Appscrip evolved from years of experience making mobility solutions and being a tech solution provider for startups. We are a mobility company with a product first approach building customizable products that serve as accelerator scripts for businesses looking to hit the market in quick time and reasonable cost. We have accelerated companies of the likes of Reliance Jio , Rapido , Byjus, Inmobi, Glance, Infra.market all unicorns or soonicorns. We have a full stack team that comprises backend API developers in Python , GoLang , Node.JS and web front end developers in React.JS and Angular.JS and mobile app developers in iOS , Android and Flutter.

Started in 2014, we currently employ 250+ people across three offices in Mohali, Surat, and Bangalore. 14 students from NavGurukul are currently working with us.

The candidates albeit missing formal degrees show a great zeal to learn and have their feet on ground. This attitude makes them very malleable and we have been able to tune them to our requirements. Since they are young , they learn quickly and since they are from less gifted backgrounds they have that extra desire to excel and make it big. Technology has opened up opportunities for people to excel even without a formal degree and we have found a high % of success hiring from Navgurukul.

We look forward to continuing our partnership with NavGurukul and would recommend other organizations as well to work with them for their own hiring needs.

{Signature}

{Name} Rahul Sharma

{Designation} CEO

Annexure-II (Companies where students have been placed)

Sl. No.	Company Name	Starting Salary
1	Accolite India	20000
3	AppScrip	30000
4	AssessPrep	20000
5	BeeCash	20000
6	BitCot	15000
7	Brain inventory	21000
8	BSD-Technologies	20000
9	Cactus Global	41500
10	Championfy	25000
11	Cliffex Software Solution	16,000
12	Codechef	35000
13	Codift Technology	15,000
14	Coditas	20000
15	Creativity Adda	20000
16	DM social software Pvt ltd	20000
17	Edumetrix	15,000
18	Edunomics	15000
19	Freelancing	20000
20	Fyraway	60000
21	GamingMonk	35000
22	Hannu Technology	20,000
23	Hope Foundation	20000
24	HyperVerge	20000
25	IDream education	20000
26	IHX	25000
27	Infistack	20000
28	Instate Technology	15000
29	Ithena	20000
30	KMUNOTAG Pvt. Ltd	20000
31	Layeriv	35000

32	Leap Club	15000
33	Madgical Techdom	20000
34	MagicBus	20000
35	Mahiti infotech	20000
36	Mindtree	27000
37	Mobillor	30000
38	Momspresso	30000
39	munshiG	15000
40	Navgurukul	20000
41	NeenOpal	20000
42	Next Level Media	15000
43	PakkaProfile	25000
44	ParallelDots	15000
45	Pixelmath	25000
46	Repup.co	20000
47	RMZ Corp	20000
48	Rootbridge Academy of Giving Pvt.Ltd	20000
49	Sarvacharya information Technology	15000
50	Saya	15,000
51	Shikshantar	20000
52	Skillate	1,000
53	Small World Digital services Pvt Ltd	25000
54	Snapdeal	25000
55	Social Lab	20000
56	Sveltose Technology	15000
57	Techconfer Technology	15000
58	Thidiff Technologies	12500
59	ThoughtWorks	50000
60	Tinkerkraft Technology Labs	20000
61	Trackier	25000
62	Transerve Technologies Pvt. Ltd.	28000
63	UNI	20000

64	Whitehat Jr	30000
65	Winulla	20000
66	Xpresscure	20000
67	Yugasa Software Labs	20000



Skill India
कौशल भारत - कुशल भारत

LIST OF TOOLS AND EQUIPMENT			
Software Programmer Course			
S. No.	Name of Tools & Equipment	Specification	Quantity
1.	Laptop / Desktop	CPU: 32/64 Bit i3/i5/i7 or latest processor, Speed: 3 GHz or Higher. RAM:-4 GB DDR-III or Higher, Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet, with USB Mouse, USB Keyboard, and Monitor	One Per Student
2.	Wi-fi router	With wireless connectivity	As required
3.	Switch	8 Ports	As required
4.	Internet Connectivity	At least 2mbps	As required
5.	Software: Linux	Latest Version	As required

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