To   **Date: 22/4/2020**

The Principal

Government Engineering College

Dear Sir / Madam,

We are pleased to inform you that we have signed Master Service Agreement (MSA) with TCS iON, a strategic unit of **TATA Consultancy Services Ltd**. As per this agreement, GKS will facilitate **Industry Honour Certification (IHC)**, TCS iON's flagship offering in higher education space. IHC is a set of Industry designed courses on advanced topics and aligned with academic curriculum.

Given below is the list of IHC courses currently available:

Sr. No.	Name of the Course	Duration	Mode of Learning	Fees to be paid by student in Rs.	Eligibility Criteria
1	Usability Design of Software Applications	15 weeks	Phygital**	17,700	Students of II/III/IV year of any discipline of Degree engineering colleges
2	Artificial Intelligence for real world application	15 weeks	Phygital	17,700	
3	Applied Cloud Computing	15 weeks	Phygital	17,700	
4	Practical Approach to Data Mining and Analytics	15 weeks	Phygital	17,700	
5	Applications of Deep Learning and Neural Networks	15 weeks	Phygital	17,700	
6	Information Security - Practitioner's perspective	15 weeks	Phygital	17,700	
7	Innovation & Entrepreneurship	15 weeks	Phygital	20,060	
8	Intelligent Game Design and its applications	15 weeks	Phygital	20,060	
9	IoT and its applications	15 weeks	Phygital	20,060	
10	Machine Learning for real world application	15 weeks	Phygital	17,700	
11	Industrial Mechatronic Systems	15 weeks	Phygital	20,060	
12	Solar Energy Technology and its applications	15 weeks	Phygital	20,060	

* Above fees per course mentioned above is inclusive of Tax. Taxes, GST, VAT, levies, etc.

** Phygital refers to a mode of learning leveraging both Physical and Digital modes.

Interested students have to fill up the google form .

https://docs.google.com/spreadsheets/d/1kDNgueACUY33HJTBOa5_H9tvuq5x9HhqceWlVabf5po/edit#gid=1651376181

GKS will share the details of interested students with the colleges. Institutes will share the final list with sign and stamp of Principal of respective institutes after opening of colleges. Students will have to pay the fees online on portal of GKS as and when instructed by Gujarat Knowledge Society (GKS).

Note:

- More details on courses available in "List of Courses" section
- These courses are likely to start from July 2020
- Minimum batch size is 30 students per course per institute
- Fees will be paid on GKS portal when communicated

Key Benefits as a Student

- Learn industry trending skills as part of their curriculum
- Gain hands-on experience to build applied knowledge
- Get opportunity to showcase skills to potential recruiters

Sample Certificate

TCS iON
Industry Honour Certification

Logo 1 | Logo 2 | Logo 3

Certificate of Completion

is awarded to

Mr. John Doe

for successfully completing the course on

Internet of Things and its Applications

with **Grade B**

_____
Venguswamy Ramaswamy
Global Head, TCS iON
Tata consultancy Services

_____
Date issued

- Only the successful students of the summative assessment will receive the digitally verifiable certificates.

- The students will be able to download the certificate after login into the platform.

- The certificates will be co-branded by TCS iON along-with the respective industry partner.

List of Courses

Following are the list of courses currently live along with syllabus outline and moderator details:

Sr. No.	Course Name	Moderator	Course Syllabus (Outline)
1	Usability Design of Software Applications	**Industry Expert:** 1. Mr. T Arumugapandian, Chief UX Architect, Techdew UX Design & Consulting Pvt. Ltd. **Academic Expert:** 1. Dr. Ramesh Sharma, Former Director, Commonwealth Educational Media Centre for Asia	• Usability Fundamentals and Quality • User Interface and the User Experience • User Experience Analysis & Design
2	Artificial Intelligence for real world application	**Industry Expert:** 2. Mr. Siva Natarajan, Delivery Head – MFDM Transformations, Tata Consultancy Services **Academic Expert:** 2. Ms. Ashvini Shahane, President – Learning Services & Principal Architect, Synergetics India PVT Ltd. 3. Mr. Nabajyoti Boruah, AVP – Technology Lead Architect, Synergetics India PVT Ltd.	• Introduction to AI (History, Tools to be used, Applications of AI, etc.) • Search (Intelligent agents, uninformed search, Search Techniques, Planning, control strategies, etc) • Reasoning (Rule-based systems, semantic net, proposition, first-order logic, etc.)
3	Applied Cloud Computing	**Industry Expert:** 1. Mr. Guruprasad Kambaloor Nagaraja – Enterprise Architect, Tata Consultancy Services **Academic Expert:** 1. Ms. Ashvini Shahane, President – Learning Services & Principal Architect, Synergetics India PVT Ltd.	• Introduction to the cloud (Evolution of IT, Essential characteristics, Cloud computing vs cluster computing vs grid computing, etc) • Cloud Computing Stack (Types of cloud, role of NW, service model – XaaS, Deployment Model, etc)

Sr. No.	Course Name	Moderator	Course Syllabus (Outline)
		2. Mr. Nabajyoti Boruah, AVP – Technology Lead Architect, Synergetics India PVT Ltd. 3. Mr. Omprakash Pandey, AVP – Delivery, Synergetics India PVT Ltd. 4. Mr. Mahendra Shinde, Software Consultant and Trainer, Synergetics India PVT Ltd. 5. Sonu Sathyadas, Technical Consultant, Synergetics India PVT Ltd.	• Services (IaaS, PaaS, SaaS)
4	Practical Approach to Data Mining and Analytics	**Academic Expert:** 1. Ms. Ashvini Shahane, President – Learning Services & Principal Architect, Synergetics India PVT Ltd. 2. Ms. Chitra Iyer, Technology Lead for Database & BI, Synergetics India PVT Ltd. 3. Mr. Chandrasekhar Deshpande, Corporate Trainer & Architect, Synergetics India PVT Ltd.	• Introduction to Data Mining • Data Preprocessing • Data Mining Algorithms
5	Applications of Deep Learning and Neural Networks	**Industry Expert:** 1. Dr. P H Anantha Desik, Product Specialist – Algorithms & Analytics, Tata Consultancy Services 2. Dr. Sitarama Brahmam Gunturi, Head, SPD CoE, Tata Consultancy Services 3. Mr. Shailendra Langade, Chief Architecture, Tata Consultancy Services	• Introduction • Machine Learning • Basics of Neural NW (Artificial Neural NW, Popular NW, The Human brain, etc.) • Deep Learning NW (CNN, RNN & LSTM, Sentiment analysis, Sentence classification) • Emerging Trends (Embedding from LASER)
6	Information Security - Practitioner's perspective	**Industry Expert:** 1. Mr. Ajit Menon, Chief Security Officer, Tata Consultancy Services **Academic Expert:** 1. Mr. Alok Tripathi, Director Incharge, NIELIT Patna	• Intro to Basic Security Services (Concept, Confidentiality, security trends, etc.) • Anatomy of an Attack (NW mapping using ICMP, TCS

Sr. No.	Course Name	Moderator	Course Syllabus (Outline)
			Pings, TCP & UDP, FTP, Vulnerability scanning, etc.)
			• Protocols Attacks and Defense Mechanisms (NW Layer, Transport and Application Layer)
			• Malicious SW (Types, Propagation, Payload system corruption, etc.
			• Cryptographic Tools
			• Topics in Security (Security auditing, Legal and ethical aspects, etc.)
7	Innovation & Entrepreneurship	**Industry Partner:** 1. Mr. Sivakarthikeyan Velayutham, CEO – HappyMongo Online Solution Pvt Ltd. **Academic Partner:** 1. Prof. Ganesh N Prabhu, Professor – Strategy, IIM Bangalore 2. Prof. Suresh Bhagavatula, Associate Professor – Entrepreneurship, IIM Bangalore	• Intro to DO Your Venture • Opportunity & Idea Generation • Idea Validation & Evaluation • Lean Canvas & Effectuation • Project Submission: Lean Canvas • Managing Product Development • Understanding User Needs • Organising Product & Service Development • New Product Strategy • Design Thinking & Project on Innovation
8	Intelligent Game Design and its applications	**Academic & Industry Expert:** 1. Prof. Manisha Mohan, Dean – University of Petroleum & Energy Studies (UPES) School of Design	• Definition of a Game & History of Game Design • Principles of Intelligent Game Design (Goals, Challenges, Feedback) • Game Design and Development Process (Game mechanics, The big idea, User study, etc.)

Sr. No.	Course Name	Moderator	Course Syllabus (Outline)
			• Game Technology (Game Engines, AR, VR and AI) • Project Work: Rapid Prototyping of a Game Concept • Applications of Games and Roles for Gaming Professionals
9	IoT and its applications	**Industry Expert:** 1. Mr. Rajarama Nayak, Head of Business Solutions and Technology for Connected Consumer products, TCS IoT Unit **Academic Expert:** 1. Prof. Yashavant Kanetkar, Director, KICIT Pvt. Ltd. & KSET Pvt. Ltd. 2. Prof. Shrirang Korde, Technology Expert	• IoT Overview (Intro, Kit description, structure, data types, etc.) • IoT Functionality (Time, Characters, Bits & Bytes, etc.) • IoT Advanced Functionality (PWM, Communication, I2C, SPI, etc.) • IoT Wireless Module (Wireless module basics, wireless connectivity, acting as TCP, etc.) • IoT Sensors / Devices (LDR, LED Strip, Switches, Temperature sensor, etc.) • IoT Projects
10	Machine Learning for real world application	**Industry Expert:** 1. Dr. Sitarama Brahmam Gunturi, Head, SPD CoE, Tata Consultancy Services 2. Dr. P H Anantha Desik, Product Specialist – Algorithms & Analytics, Tata Consultancy Services 3. Mr. Shailendra Langade, Chief Architecture, Tata Consultancy Services **Academic Expert:** 1. Prof. G C Nandi, Dean – Academics & Head of Department, IIIT Allahabad	• Basics of Statistics • Basic of Machine Learning • Machine Learning Methodology (CRISP DM)

Sr. No.	Course Name	Moderator	Course Syllabus (Outline)
		2. Ms. Ashvini Shahane, President – Learning Services & Principal Architect, Synergetics India PVT Ltd. 3. Ms. Chitra Iyer, Technology Lead for Database & BI, Synergetics India PVT Ltd. 4. Mr. Chandrasekhar Deshpande, Corporate Trainer & Architect, Synergetics India PVT Ltd.	
11	Industrial Mechatronic Systems	**Industry Expert:** 1. Mr. Adil K Bala, General Manager - Paint, Trans Axle & Engine Assembly, Trim Chassis Fitment, Tata Motors 2. Mr. Amitav Sahay, General Manager – Paint Factory, Tata Motors. **Academic Expert:** 1. Prof. S N Joshi, Associate Professor, Department of Mechanical Engineering, IIT Guwahati	• Introduction (Mechatronics, Principles: Scope of involved disciplines, Domestic appliances, Project – Identify, analyse & submit reports) • Sensors & Transducers • Signal Conditioning & Data Acquisition
12	Solar Energy Technology and its applications	**Industry Expert:** 1. Mr. Nandakumar Nayak, Head – Training Engineers & Renewables, Tata Power Skill Development Institute (TPSDI) 2. Mr. Hari Rohra, Head – Training Resource Utilisation, Tata Power Skill Development Institute (TPSDI)	• Introduction (Energy Scenario: Global & Indian context, Brief history, etc.) • Fundamentals of Solar Radiation (Solar radiation, Terrestrial solar radiation, etc.) • Solar Photovoltaic Technology (Overview of solid state physics, working principle of solar cells, etc.)

Components

Each course designed will provide students access to the 10 components in a phygital mode.

Digital content in multi modal form

- A digital course, in a self-paced, created in alignment with the curriculum. The course will contain in multi modal format including but not limited to videos, pdf/ppt, quiz, etc. which will be accessed at anytime from anywhere.

- The approx. duration of the course is **~25-30 hrs**.

- In addition to the digital course, there may be reference books provided in a pdf format which will be accessible by a student in a view only mode.

Live Lectures

- There will be around **15 live lectures** i.e. 1 per week. It will be scheduled at a pre-defined day of the week and at a pre-defined time slot. The schedule will be intimated well in advance to the program start.

- The live lectures will be interspersed with the digital course and will be delivered by a combination of Academic & Industry SME.

- The duration of live lecture will be between **1 hr-1 hr 15 min** including QnA session of **10-15 mins**. at the end of the lecture.

- The standard checklist required to attend the live lecture will be made available to the students.

- In case the student is unable to attend the live lecture, the recorded video of the live lecture will be available for the students for future access.

Interactivity

- The students can ask queries/clarifications to the SME through chat option.

- The responses will be given by the SME during the QnA session of 10-15 mins.

- The responses to the unanswered questions will be shared by the SMEs in the community.

- Students will also be able to ask further questions to the SMEs in the community.

Academic connect community

- The community is moderated by an academic expert from a premiere institute.

- Students can gain conceptual clarity through bite sized learning content published by academic expert like blogs, quizzes, tips/tricks, debates, and more.

- Students can post any queries against any post published by the academic expert in this community.

- Queries will be answered by the SME in a pre-defined time frame.

- In addition, the students will be able to ask queries/clarifications to the academic experts through the **Discussion Room**.

Industry connect community

- The community is moderated by an industry expert from a leading corporate.

- Students can gain applied knowledge through bite sized learning content published by industry expert like quizzes, blogs, industry updates, best practices, industry use cases and more.

- Students can post any queries against any post published by the industry expert in this community.

- Queries will be answered by the SME in a pre-defined time frame.

- In addition, the students will be able to ask queries/clarifications to the industry experts through the **Discussion Room**.

Industry Assignment

- The students will have access to 2 mini projects for practical and hands-on exposure. The objective of these mini projects is to facilitate learning by doing.

- The projects will be published in a Do-It-Yourself format (step-by-step guide) in either the academic connect community or industry connect community. The students and institute's faculties will be able to access the project. The students are expected to go through the steps, implement the projects on their own and gain application oriented knowledge. The faculty of institute is expected to administer the implementation of the projects by their students.

- In addition, an evaluation rubric will be published in the community which can be accessed only by the faculties of the institutes. The faculties of the institute will be responsible to administer and get the projects implemented by their students and evaluate. The project marks will not be included in the summative assessments and there will be no certification issued after completing the project.

Hands-On Details

- The hands-on environment will consist of virtual environment and/or kits and/or physical labs as per the course requirement. The same will be shared post finalization and signoff from academic and industry experts.

- In case of virtual environment, TCS will make it available from the platform.

- In case of physical kits, TCS will on-board vendors and student/institute can get the kit at an additional price through these vendors.

- In case of physical labs, TCS will provide the necessary specs and onboard vendors. Institutes to reach out to the vendors to set up labs in their institutes at an additional price.

Practice Assessment

- There will be 2 practice assessments provided to students with multiple attempts

- These are Internet Based Assessments that can be taken by the student at anytime and from anywhere.

- The assessment will be available for students after a pre-defined date post the programme start.

- Students will receive personalized analytics report outlining their strengths and areas of improvement post successful completion of the assessment.

Summative Assessment

- Students to appear for summative assessments at Institute premises.

- The institutes will administer and conduct the summative assessments.

- The institutes will be responsible for arranging the assessment infrastructure and proctors required to conduct the assessment.

- The summative assessment will be of 2 stages i.e. Part-A: Test of Knowledge (objective) and Part-B: Test of Application as applicable.

- There will be pre-defined multiple slots per course available for institutions to choose from.

Part A Assessment
- o Part A will require computer nodes to deliver.

- o The specs and other requirements will be shared by TCS to the respective institutes at that start of the programme.

Part B Assessment
- o Part B will consist of virtual environment or kits or physical labs as per the course requirement similar to the hands-on environment.

- o In case of virtual environment, TCS will onboard vendors and make it available from the platform. However, the computer nodes to access the virtual environment will be provided by the institutes. TCS will share the specs and other requirements for conducting the part B assessment using the virtual environment.

- o In case of physical kits and physical labs, TCS to onboard vendors and connect them with the institutes. Institutes to make the physical kits/labs available for conducting the part B assessment through the vendors at an additional price.

- o The institutes will be responsible to take videos of the assessment and share it with TCS for evaluation.

Evaluation
- o TCS will perform the evaluation of the summative assessments.

- o The part A evaluation will be done automatically through the platform.

- o The part B evaluation will be dependent on the test design finalized as per the course requirement.

Results and performance sharing
- o The course wise performance of the summative assessments of the students will be shared with the respective institutions.

- o Institutions will be responsible to include the marks of their students in their transcripts.

Digital Certificate

- **Only the successful students** of the summative assessment will receive the digitally verifiable certificates.

- The students will be able to download the certificate after login into the platform.

- The certificates will be co-branded by TCS iON along-with the respective industry partner.

Internships

- Internship opportunities will be available to top percentile students of respective courses, subject to vacancy in corporates.

- TCS will be reaching out to corporates who will provide the internship opportunity in an ongoing manner as and when available.

- The profiles of the successful students of the respective courses will be shared with the corporates.

- The process and criteria of selection will vary across corporates as per their HR policies and depending on the internship opportunity.

- The corporates will shortlist, undertake necessary process and select the students for the respective internships.

Placement Assistance

- Placement assistance will be available to successful students of respective courses, on successful completion of course and assessment subject to vacancy in corporates.

- TCS will be reaching out to corporates who will provide the placement in an ongoing manner as and when available.

- The profiles of the successful students of the respective courses will be shared with the corporates.

- The process and criteria of selection will vary across corporates as per their HR policies and depending on the placement.

- The corporates will shortlist, undertake necessary process and select the candidates for the respective placement.

Interested students, as mentioned in page 1, can register themselves through the google doc (link is given on page 1) or college can get the nomination in format attached with the letter. Both formats are identical and college / student need to fill any one of them.

After filling up the form (over google doc or in .xls), the data will be shared with Gujarat Knowledge Society with sign and stamp of the respective Principal.

We will further inform you about the course details once we get the nominations from all the colleges.

Colleges are requested to **share the nominations latest by 17th May 2020** so that interested students will have sufficient time to complete the registration and can join the course in time.

Encl:

Google form link /   Format to share the nomination.