



# Best Practices

**DEPARTMENT OF  
COMPUTER SCIENCE AND ENGINEERING**

**GOKARAJU RANGARAJU**  
**INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous)

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## **Practice 1:**

### **Title of the Practice: G-CLIP (GRIET Competency Level Improvement Program)**

#### **Objectives of the Practice:**

- To train the students with courses beyond curriculum.
- To work with projects in the cutting edge technologies and domains.
- To bridge the gap between regular academic curriculum and the industry requirements.

#### **The Context:**

With the changing needs of the industry, this program is an initiative to bridge the gap between the academic curriculum and the industry. This program focuses in improving the students' competencies in the current technologies.

#### **The Practice:**

In order to bridge this gap, CSE department encourages its students to undergo training under G-CLIP during their regular class work. In this regard, the department of CSE has conducted training programs for Machine Learning, Big Data Analytics, etc.

#### **Evidence of Success:**

- World largest Hackathon SMART INDIA HACKATHON was conducted by HRD and AICTE for Software division at 48 centers all over India on 2 -3 March 2019. From GRIET 3-teams were selected for GRAND FINAL for the event.
- Team Y-NOT! participated at RKGIT , Ghaziabad, Team STARDUST participated at Manipal Institute of Technology Manipal and Team Agumentors participated at IIT Bihar.
- Team Y- NOT! won the FIRST PRIZE with 75000/- cash award. Provided solution to Dalmia Cements. STARDUST is the runner-up for BEML problem solution.
- Some of the students trained under G-CLIP have achieved Best Student Project Award from TCS and also achieved awards for best projects during the training programs. The increasing number of students got this training opportunity year by year is the best evidence for the success of G-CLIP.

#### **Problems Encountered and Resources Required:**

As the training programs are conducted during academic curriculum, the regular class work has to be adjusted accordingly because of the availability of external industry experts. Hackathons are also conducted during academic curriculum, students have to manage their attendance.

#### **Proofs:**



**III CSE Students won 2<sup>nd</sup> Prize in Scientific Forestep held in June, 2023**



**Team Y - Not! Won 1<sup>st</sup> Prize of Rs.75000/- for DALMIA BOT at SIH 2019**



**Best Student Project Received from TCS, Hyderabad**



**Students Developed Projects During Training Program on Machine Learning**



**Students received Certificates for Best Project in the Training Program on Big Data Analytics**

## Practice 2:

### Title of the Practice: Social Relevance and Self Reliance (SRSR)

#### Objectives of the Practice:

SRSR focuses on achieving the Program Outcome “*Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context*”

#### The Context:

- Disseminates the knowledge to other educational institutes by conducting various outreach programs.
- The faculty identifies and gives exposure to the institutes that is in need of the technology and tools usage.
- Identify the uplift of resources like lab and sports equipment at the educational institutes.

#### The Practice:

- Outreach programs are conducted at various schools.
- Give training to students on the basics of different technologies.
- Provide the equipment for supporting the educational institutes.

#### Evidence of Success:

- An outreach program conducted on Arduino at Jubilee hills Public School, ZPHS.
- Street Cause program conducted to provide sports and scientific equipment at Siddipet Government School.

#### Problems Encountered and Resources Required:

Since the program has to be conducted at external institutes, the faculty have to adjust their classes accordingly.



Street Cause program to provide sports and scientific equipment at Siddipet Government School



One Day Workshop on “Introduction to Arduino Controller” to the students at JPHS





**One Day Workshop on “Introduction to Arduino Controller” to the students at ZPHS, Nizampet**

### **Practice 3:**

#### **Title of the Practice: GRIET Lab On Board (GLOB)**

#### **Objectives of the Practice:**

G-LOB (GRIET - Lab on Board) empowers the lab courses in the department. Under this practice, students are guided to develop small application projects based on their lab tasks and learning.

#### **The Context:**

- Encourages the students to use the skills learned in the labs for developing a small application.
- Provides a platform to integrate the knowledge acquired to build the project and demonstrate it.

#### **The Practice:**

- After the first week of lab practice, teams are formed and project titles are decided.
- The application will be built and verified by the faculty on a regular basis.
- The project is finally documented and presented to other students to disseminate their knowledge in developing the project.

#### **Evidence of Success:**

- GLOB is conducted for the students of GR20 regulation students for Second year First and Second Semester students.

#### **Problems Encountered and Resources Required:**

Since all the students may not be able to grasp the topics in the lab, motivating and helping the students to develop the applications.



**GLOB conducted for Database Management Systems Lab in II-I**



**GLOB conducted for Scripting Languages Lab in II-I**



#### **Practice 4:**

##### **Title of the practice: G- CARE (Consultancy and Research Empowerment)**

##### **Objectives of the practice:**

GRIET functions with the vision of blossoming into the best of institutions for engineers with attitudes, skills and knowledge so as to become an epicentre of creative solutions, take every effort to nurture research culture among faculty and students.

##### **The Context:**

Research is becoming critical in Educational Institutions since research facilitates best quality teaching in classrooms and laboratories. Research helps faculty to enhance their contemporary subject knowledge and connects with sources of information and networks of professional support. Hence, GRIET has come out with an action plan to promote Research among faculty and students through diverse strategies like Policy on Patents, Publications, Policy for Conference fee reimbursement, Research Awards and establishment of Industry supported labs to facilitate industrial consultancy and promote MoUs with other academic institutions and industry for collaborations.

##### **The Practice:**

**Sanction of Seed Money:** The Research and Development budget in any given financial year is not below 100 lakhs which facilitate interested faculty and students to carry out their research through seed money from the R&D Budget. Sanction of seed money is made simple through research policy of the institution.

**Research Awards:** Research awards have been instituted to promote research culture among faculty. Every year, faculty with highest number of publications indexed in SCI in a given calendar year shall be awarded with a Certificate of Recognition, Plaque, and a Cash Prize. This culture creates a healthy competition and encourages the faculty to publish their research work on frequent basis on reputed platforms.

**Reimbursement of Conference Registration Fee:** International conferences are the apt avenues to publish the contemporary research work of faculty. To encourage faculty to publish their research findings in the form of research papers in conferences, the registration fee for attending conferences is being reimbursed to a maximum of Rs.15000 in a given calendar year. A policy is in place to reimburse the registration fee towards attending a conference.

**Reimbursement of Patent Attorney Fee:** Faculty are encouraged to publish patents with their individual affiliation or Institutional affiliation. Patents published with institutional affiliation shall be reimbursed to a maximum of Rs. 75,000/- per year for every faculty towards Attorney fee, Application Fee, and Search Fee. An amount of Rs.10,000/- shall be paid to lead inventor of the Patent filed in the name of the Institution as an incentive.

**Incentives for Consultancy:** To encourage faculty to take up consultancy assignments incentives have been declared. Total earning out of consultancy grants shall be shared among investigator and institution on 70%-30% basis

**Promotion through awareness programmes and focussed Centres:** Research Centers have been established to carryout various consultancy tasks in each departments like Centre for Advanced Communication Lab Supported by Digilogic Systems Private Limited, Hyderabad, Centre for Machine Learning Supported by Ample Auto Tech Private Limited, Haryana, Centre for Computing Supported by AudIntel India Private Limited, Hyderabad, Centre for Data Science supported by Ample Auto Tech Private Limited, Haryana, Centre for Computer Vision supported by Measure India corporation Pvt Ltd, Hyderabad, Centre for E- Mobility Supported by Instasine Power Technologies Private Limited, Thane, Centre for advanced Manufacturing supported by Measure India corporation Pvt Ltd, Hyderabad

### **Evidence of Success:**

The strategies of GRIET through G-CARE has paid rich dividends:

- No of Publications indexed in SCOPUS during 2022: 536 articles
- No. of Publications indexed in SCI/SCIE/ESCI during 2022: 80 articles
- Amount received through R&D Grants: 1,29,22,000 (One Crore Twenty Nine LakhTwenty Two Thousand)
- Amount received through Consultancy Grants: 58,36,290 (Fifty Eight Lakh Thirty SixThousand Two Hundred Ninety)
- Improved Score in Research and Professional Practice (RPC) of NIRF 2022:

Year of NIRF Ranking	2022	2021	2020
RPC Score	12.60	5.71	2.72

### **Problems encountered and resources required:**

High Quality research demands high investments in terms of facilities and continued involvement of individuals.

## Practice 5:

- **Title of the Practice:** Internship Project
- **Objectives of the Practice:**
  - Expose the students towards real word problems and encourage them to propose novel solutions
  - To explore state of art open source tools
  - To understand the software engineering practices employed by industry
  - To reduce training time at the working place
  - To work with inter disciplinary projects
  - To associate with concerned projects from day one at working environment
  - To expose agile project management process
- **The Context:**

Most of the software industries claim that most of the engineering students coming out of the respective colleges are not having enough skills to get employment. They claim that engineering curriculum is not considering the industry needs. The industry has to spend considerable amount of their resources and time for extending training to their fresh employed engineers. This intern effect their schedules, deliverables and revenue.
- **The Practice:**

In order to bridge this academic and industry gap, the GRIET CSE department encourages students should undergo internships with reputed software industries during their study. In this regard the institution has MOU with internationally reputed software industries such as TCS, CAPGEMINI so that they extend training to our students and of offer remote internship projects. From the last 3 years TCS Technological Business Unit, Manufacturing Business Unit offer real time projects with the scope limited to one semester (3months) for their campus selected students. The students have a chance to work with developers during the project. These projects have the mentor from TCS side as well as department side.

This exercise is win-win situation for all stakeholders. Department gets benefit to explore real time projects and problems through mentors. Students get benefit of exploring state of art tools and technologies and Industry can greatly reduce resources (time, human and revenue) which otherwise needed for training their fresh employers.
- **Evidence of Success:**

Some of the students got training is getting offer letters from companies like TCS, Capgemini, etc for joining on the basis of course completion before the results are declared. This is clear evidence that how industries get benefit and also how student get preference over others from activity. The increasing number of students got this training opportunity year by year is the best evidence for the success of the remote internship activity.

- **Problems Encountered and Resources Required:**

Since this remote internship project is also associated with academic major project for final years some minor problems are faced by department. Academic project review schedules may have to be adjusted for the remote internship projects because of their external interaction. Since the scope of the real time project is restricted to one semester it may not yield full problem domain benefits to the students in spite of acquiring industry best practice agile project management (weekly scenarios and deliverables).

Dedicated Single Point of Contact is needed to handle this activity right from planning to execute the mentoring sessions. SPOC is the interface between Industry trainers/mentors and students.



**INTERNSHIP LETTER**

UJWALA PENTELA  
F.No 503, Markaz Apartments, Musheerabad  
Hyderabad – 500020  
TS  
IN

Dear UJWALA,

On behalf of Amazon Development Centre (India) Private Limited, a company incorporated under the laws of India, having its registered office at # 26/1, Brigade Gateway, World Trade Centre, 10th Floor, Dr. Rajkumar Road, Malleshwaram (W) Bangalore - 560 055. Karnataka India (hereinafter the "Company" or "Amazon India"), we are very pleased to issue this Internship Letter for the position of an Intern at Hyderabad, India.

Your internship with the Company will be subject to your acceptance of this Internship Letter and the terms and conditions set forth hereinbelow on or before 10 business days in the manner provided for by the Company.

Upon your acceptance of this Internship Letter, the same shall form a valid and binding agreement between Amazon India and you, and you shall be bound by the terms and conditions stipulated herein below.

**1. Date of Commencement**

Your internship with Amazon India will commence on **09-Jan-2023** and shall end as per the provisions contained in Section 12 herein below. The said duration of internship shall hereinafter be referred to as the "Term".

**2. Duties**

- 2.1 You will be engaged in the position of **Software Dev Engineer Intern**. Your manager will advise you about your duties and responsibilities after your joining with us. You will be expected to perform your duties to the best of your ability at all times as per the

REGISTERED OFFICE : # 26/1, Brigade Gateway, World Trade Centre, 10th  
Floor, Dr. Rajkumar Road, Malleshwaram (W) Bangalore - 560 055. Karnataka  
India

Tel. : + 91 - 80 - 6787 3000, Fax : +91 - 80 - 3007 1031 / 33 CIN :  
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during the period of the Covid-19 Pandemic, you may be permitted to work from a location of your choice in India with the prior approval of your manager under the condition that you are willing to get back to the location mentioned above as and when required by Amazon.

**5. Remuneration**

- 5.1 Your internship stipend will be **Rs.110,000** per month made payable in arrears and subject to all lawful deductions of tax.
- 5.2 Amazon India has the right to deduct from your stipend any sums which you may owe Amazon India, including without limitation, any over-payments or loans made to you by Amazon India or any demand raised by any judicial or quasi-judicial authority for your acts or omissions and / or losses suffered by Amazon India as a result of your negligence or breach of the terms contained in this Internship Letter/Amazon India's Policies (as may be applicable to you), or your failure to return Amazon India's property.
- 5.3 You will be reimbursed for any reasonable expenses incurred by you in the course of the performance of your internship on behalf of Amazon India, subject to your compliance with the Expenses Policy contained in Amazon India's Policies and Procedures (as may be applicable to you).

**6. Leave and Benefits**

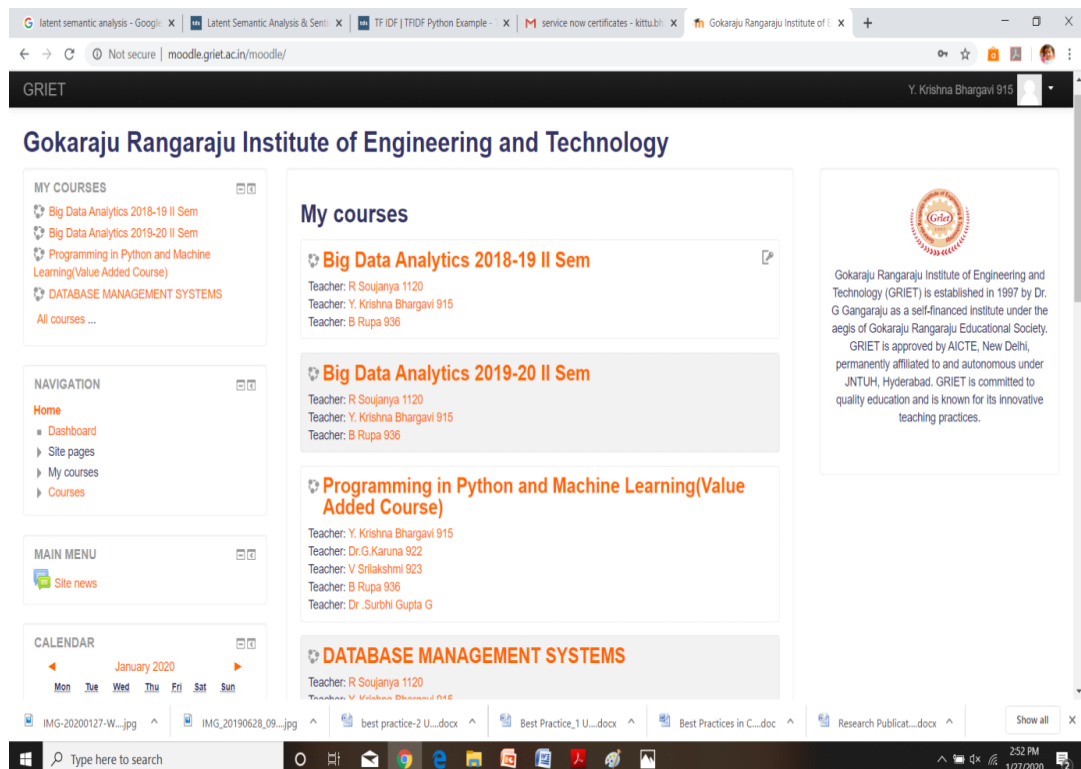
You will not be entitled to any leaves or such other employee benefits during the term of your internship with Amazon India.

**7. Confidential Information and Confidentiality Obligations**

- 7.1 "Confidential Information" means and includes any information that relates to the business of the Company that is not generally available to the public. Without limiting the foregoing, Confidential Information includes:
- (1) the identity of, contractual terms with, and any information relating to, the Company's business partners, customers, services clients, sellers, agents, employees, contractors, investors, joint venturers, vendors, or suppliers and the terms on which the Company does business with each such entity, or generally;
  - (2) computer code (including source code and object code) or software developed, modified, or used by the Company;

### Practice 6:

- **Title of the Practice:** Learning Management Systems(LMS)
- **Objectives of the Practice:**
  - To make zero utilization of using paper based and to protect the environment
- **The Context:**
  - All the course materials, notes and contents take around 350 papers per course.
  - If this is replaced with Digital medium, this will reduce usage of papers and avoid cutting trees for manufacturing papers.
- **The Practice:**
  - Developing content electronically from initial stage of teaching process.
- **Evidence of Success:**
  - Developed Learning Management Systems(LMS) platform for all courses.
  - All faculties are making digital content, are placing their contents in the Learning Management Systems(LMS) courses.
  - Students are given access only for the respected year and courses.
- **Problems Encountered and Resources Required:**
  - Need dedicated server and user space for faculty courses and students access.
  - Established open source “Learning Management Systems(LMS)” and Standalone server for this purpose.



Learning Management Systems Platform for Dissemination of Content to Students

Year 3 (2016-17)								
Name of the value added courses (with 30 or more contact hours) offered during last five years	Course Code	Year of offering	No. of times offered during the same year	Year of discontinuation	Number of students enrolled in the year	Number of Students completing the course in the year	Dept	
Database Design (ORACLE Academy) task	GR16V8001	2016-17	1	-	408	360	CSE	
Programming with SQL (ORACLE Academy) task	GR16V8002	2016-17	1	-	408	348	CSE	
Python	GR16V8003	2016-17	1	-	161	140	CSE	
Java	GR16V8004	2016-17	1	-	160	130	CSE	
Year 4 (2017-18)								
Name of the value added courses (with 30 or more contact hours) offered during last five years	Course Code	Year of offering	No. of times offered during the same year	Year of discontinuation	Number of students enrolled in the year	Number of Students completing the course in the year	Dept	
Database Design (ORACLE Academy) task	GR17V8008	2017-18	1	-	240	237	CSE	
Programming with SQL (ORACLE Academy) task	GR17V8009	2017-18	1	-	240	198	CSE	
Java Programming (IITB Spoken Tutorials)	GR17V8010	2017-18	1	-	223	200	CSE	
Python Programming (IITB Spoken Tutorials)	GR17V8011	2017-18	1	-	95	78	CSE	
Programming with PL-SQL (ORACLE Academy)	GR17V8012	2017-18	1	-	61	61	CSE	
Year 5 (2018-19)								
Name of the value added courses (with 30 or more contact hours) offered during last five years	Course Code	Year of offering	No. of times offered during the same year	Year of discontinuation	Number of students enrolled in the year	Number of Students completing the course in the year	Dept	
Cloud Program by Service Now -(TASK - Govt of Telangana)	GR18V8007	2018-19	1	-	25	15	CSE	
PHP & MySQL (IITB Spoken Tutorials)-CSE	GR18V8008	2018-19	1	-	271	266	CSE	
PYTHON (IITB SPOKEN TUTORIALS)-CSE	GR18V8009	2018-19	1	-	196	159	CSE	
SERVICENOW	GR18V8010	2018-19	1	-	27	8	CSE	
CCNA-Introduction to networks (M1)	GR18V8011	2018-19	1	-	46	43	CSE	
Database Design (ORACLE Academy) task	GR18V8012	2018-19	1	-	260	199	CSE	
Programming with SQL (ORACLE Academy) task	GR18V8013	2018-19	1	-	260	237	CSE	

### List of Value Added Courses Conducted in CSE



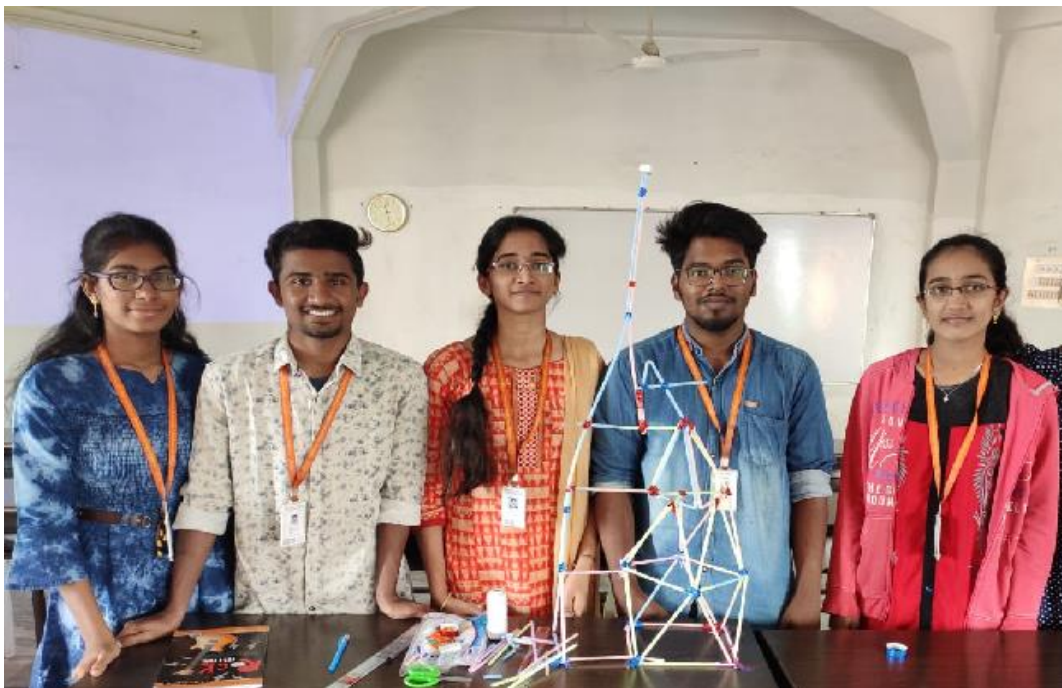
### **Practice 7:**

- **Title of the Practice: Teaching-Learning Process**
- **Objectives of the Practice:**
  - To ensure the completion of the syllabus according to the academic calendar.
  - To encourage faculty to adapt ICT tools in class room teaching.
  - To improve the pass percentage and to enhance the number of placements.
- **The Context:**
  - To complete the syllabus within the stipulated time is somewhat difficult by considering slow learner students to cope up with the bright students.
  - The faculty use ICT tools for explaining the complex topics and to avoid the confusion of the students.
  - The faculty should find complex topics and provide the material to students.
- **The Practice:**
  - Academic calendar is uploaded on the website for information to students and faculty.
  - Head of the department monitors the coverage of the syllabus.
  - To encourage the students for utilizing the library.
  - Take students feedback on academic activities.
  - Monitor the student's attendance and take necessary steps for improving the regularity.
  - Give the subject wise assignments to the students for improving the performance in the end examinations.
  - Train the faculty to use ICT tools.
  - Conduct the remedial classes for students for improving the pass percentage.
  - Give training on soft skills & technical skills during Semester breaks for improving the placements.
- **Evidence of Success:**
  - Syllabus has been completed within the time.
  - Most of the faculty have adopted ICT tools in their classes.
  - Material of the course is uploaded on the website.
  - Pass percentage and placements are increased.
- **Problems Encountered and Resources Required:**

Since the rural students and non technical faculty does not know how to use ICT tools, training has been given to them by ICT coordinators. By identifying slow learners, extra classes have been conducted to improve the results and their skills.



Faculty Using Smart Board as part of Digital Pedagogy



Students performing Marsh Mallow Activity in “Design Thinking” – Activity Based Learning Pedagogy

## Practice 8:

- **Title of the Practice: Certificate Programmes**

- **Objectives of the Practice:**

The basic objective of certificate programmes is to up-skill the students and faculty with the ever growing industry demands.

- **The Context:**

To perform industry academia linkage, various skill development activities are required.

- **The Practice:**

Conducting certificate courses both for faculty and students will keep them up-to-date.

- **Evidence of Success:**

Majority of the students go their placement with various certifications done such as OCJP, OCA, CCNA, etc.

- **Problems Encountered and Resources Required:**

A dedicated lab facility with good internet connectivity will be beneficial for the learning groups to practice hands-on.



Cisco Networking Academy

Certificate of Course Completion

## CCNA Routing and Switching: Introduction to Networks

The student has successfully achieved student level credential for completing CCNA Routing and Switching: Introduction to Networks course administered by the undersigned instructor. The student was able to proficiently:

- Explain network technologies.
- Explain how devices access local and remote network resources.
- Describe router hardware.
- Explain how switching operates in a small to medium-sized business network.
- Design an IP addressing scheme to provide network connectivity for a small to medium- sized business network.
- Configure initial settings on a network device.
- Implement basic network connectivity between devices.
- Configure monitoring tools available for small to medium-sized business networks.

ADI LAKSHMI KONDA

Student

Gokaraju Rangaraju Institute of Engineering and Technology

Academy Name

India

Location

Jan 30, 2019

Date

Dr. SRINIVASA BAPIRAJU GADIRAJU

Instructor

Instructor Signature

Sample CCNA Certificate Received

### **Practice 9:**

- **Title of the Practice:** Certification Courses in Association with IIT Bombay Spoken Tutorials and SERVICENOW MNC in support with TASK.

- **Objectives of the Practice:**

The practice ensures knowledge and skill of courses beyond curriculum to be imparted to students of CSE making them ready for Industry 4.0.

- **The Context:**

It makes them industry ready with hands on experience of cutting edge technologies and higher level concepts not covered in regular classrooms. The student becomes a self learner which he can continue throughout his life.

- **The Practice:**

The students are made to listen to Spoken Tutorials Video lectures and practice the concepts. After the course they will undergo an on line certification exam to test their understanding and grip on technology or concept.

In case of Global certification course of SERVICENOW, an internal faculty was first trained and further the trained faculty acts as a facilitator for interested students to undergo in house training in college. The students were encouraged to take Global certification exam with complete fee waiver being given by TASK and SERVICENOW for eligible shortlisted candidates.

- **Evidence of Success:**

These courses added niche to the profile of the students. Students got multiple offers from different companies based on their enhanced skill in the courses covered under best practice.

- **Problems Encountered and Resources Required:**

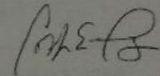
- Making them to realize to put extra effort beyond curriculum was a real challenge
- Motivating students to start self learning is one big challenge.
- Encouraging them to face global level competition and high standard certification exams is another challenge.
- Sometimes proper textbooks won't be available for value added courses and relying only on online material discourages a bit for the student.
- Continuous high bandwidth internet facility would be highly solicited
- Even the faculty had to take lot of pains to learn the latest technologies which are very new in market and be certified at first with less peers to discuss even.



**servicenow.**  
**Certified Application Developer**

**Bharath Yada**

successfully completed certification requirements for:  
Certified Application Developer  
Issued December 30, 2018 05:20:40 PM  
Certification 161001868



**Catherine Lang**  
Vice President, Training and Certification  
ServiceNow

Student Certificate as Application Developer from ServiceNow