Goal Format – 2021

1. **Institution/Consortium Name: NYC College of Technology, CUNY**

2. **Goal Number: 4 of 5**

3. **Goal Title: Aligning students classroom learning with real life diagnostic analytical tools applied to national and global anonymized patient databases for improved industrial skills and professional course developments in Radiology**

4. **Goal Director:** Subhendra Sarkar/Evans Lespinasse/Dean David Smith

5. **Goal Narrative:**
   - **a.** List the CTE program(s) this **Goal** will address.
     - **i.** Explain the rationale for addressing these programs based on the results of the CLNA.

Radiologic Technology & Medical Imaging Goals:

(1) To introduce associate level students with real life clinical analytical tools for enhanced diagnostics that will improve industrial skills, job success and allow furthering multi-modal clinical licensures in MRI, CT, Mammography and Interventional Radiology.

(2) To develop appropriate electives for the associate's students that serve as a bridge toward upper level imaging science practices. The elective courses will also serve students from Physics, Health Sciences, Bioinformatics and Biomedical disciplines that are interested in these course offerings and enhanced laboratory projects.

Radiologic Technology Rationale: Patient imaging data is complex requiring analysis of the examination request, image acquisition, image processing, and post processing analysis for accurate diagnosis in which technologists are the eyes and ears of the radiologist. The approved curriculum for associate's programs is restrictive and therefore cannot address the fast changing industrial needs, requiring extensive on the job training for our students. This gap is also exacerbated in the current COVID19 environment.

The requested software training modules will save valuable time and resources for our students and will allow them to learn imaging data science and assimilate data processing analytics mostly online using virtual networks in summer and winter workshops.

Additional electives developed by college faculty will offer simulated data processing in our computer lab, and by remote network online tools. This will enhance student's knowledge with additional industrial skills beyond being the routine technologist. This will open other advanced professional

disciplines as biometrician, biomedical data designer, data scientist and physician/patient liaisons, to name a few pathways, and assume greater roles in the Radiology workforce.

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Business Programs
Accounting
Business
Fashion Technology
Legal Assistant Studies
Marketing and Management
Ophthalmic Dispensing

Healthcare Programs
Dental Hygiene
Restorative Dentistry
Health Science
Human Services
Nursing
Radiologic Technology

Hospitality Management

Communication Design

b. Provide the projected number of RAD Tech and other students this **Goal** will serve.

- RAD 2326 Radiographic Physics (N1=30
- RAD 2426 Imaging Modalities (N2=30)
- Returning graduates (non-degree) (N3=20)

N(Total)=80

Many AAS students express fear and anxiety at the thought of career advancement due to anticipated challenge of 3D data visualization and repulsion to computerized data processing. Currently we have that demand in Mammography where such data analysis is strongly needed and hospitals do not have time or resources to adequately train their employees. The planned elective as well as modified courses will bridge this gap for program students and also attract graduates that are already employed in the industry to return to City tech and take these electives as non-degree students.

c. List the Core Indicator(s) of Performance this **Goal** will address.

Upon completion of image processing simulation modules students will be able to:

a. Learn basic and advanced data manipulation, data security, storage and analysis using basic and advanced image processing software in mammography, MRI, and CT.

b. Identify common disease trends across all ages from cancer to stroke as well as rare disease trends learning from databases in USA, Asia and Europe. This core proficiency usually does not exist or comes after decades of experience.

Upon completion of image processing simulation modules faculty will be able to:

c. Create a transdisciplinary approach across various Radiologic modalities to raise the quality and standards of student learning in multiple medical fronts in one unified approach.
d. Since global databases (ADNI, ECOG-ACRIN e.g.) in cancer, stroke, heart disease etc are available for access through federal agencies in Europe, Asia and North America that need data extraction and analyzing tools to benefit from such vast resources, the proposed acquisitions will help faculty to keep themselves up-to-date with first hand in vivo patient data across the globe without the risk of violating patient privacy and administrative bureaucracy.

d. Identify which **Uses of Local Funds** this **Goal** will include (see the *Guidelines* for the complete list of Uses of Local Funds). The institution is not required to address all six of the Uses of Local Funds.

☐ 1**. Offering students career exploration and career development activities**
☐ 2. Providing professional development for faculty, administrators, specialized instructional support personnel, career guidance and academic counselors or paraprofessionals.

☐ 3**. Building the skills students need to pursue careers in high skill, high wage, or in-demand industry sectors or occupations**
☐ 4. **Supporting integration of academic skills into CTE programs and programs of study**
☐ 5. **Planning and carrying out elements that support the implementation of Radiology programs and programs of study that result in increasing student achievement.**
☐ 6. **Developing and implementing evaluations of the activities carried out with Perkins funds**

e. Describe any coordination with external agencies, especially workforce representatives.

6.) Goal Chart:

a) In the chart below, enter the following information.

i. Describe the Goal's **Objectives** in measurable terms.

Industry Certifications

- Acquire advance modality Mammography ARRT certification for X-ray Technologists
- 3D data processor in healthcare for associate's students in the clinical phase of radiologic technology education

ii. Describe the **quantitative Evaluation Measures** the institution will use to determine whether the **Goal**'s **Objectives** have been achieved. If the institution is in the process of creating a baseline, indicate the anticipated outcome in percentage form.

i. Provide the most recent data, as well as the goal for improvement in both percentage form and numerical form.

ii. NYSED cannot accept as Evaluation Measures the results of **surveys** designed to measure student or faculty satisfaction.

Radiologic Technology

Objective	Evaluation Measure(s)
1. Students will obtain academic competency in Medical Informatics relating to medical imaging.	75% of participating students will complete the elective courses with success.
2. Enhance students' clinical skills in data science and assimilate data processing analytics.	75% of the participating students will achieve success in performing anonymized real patient data processing analysis obtainable from local hospitals and evaluated by healthcare physicians in NYC.

Objective	Evaluation Measure(s)
Provide students with industry related certifications (Continuing Ed plus ?)	

7.) Goal Timeline:

a) In the chart below, provide a Goal Timeline, noting significant Activities, month-to-month.

i. Describe the **Activities** that will help the institution achieve the Objectives.

ii. Include the **positions of the people responsible** for managing the Objectives and Activities.

RAD TECH TIMELINE

Month	Activities	Persons Responsible
July 2020	Evaluate and set up contract with Nordic Neuro Lab software vendor; obtain quotes; order equipment; arrange application training workshops for Radiology students and faculty. Five AAS students are on summer CRSP stipends that can utilize the workshops.	Subhendra Sarkar, Jodi-Ann Douglas, Nordic Neuro Lab
August 2020	Receive equipment; Complete installation; Start on campus and virtual network based training for students and faculty. Start developing elective course proposals.	CIS, Jodi-Ann Douglas, Subhendra Sarkar and Nordic Neuro Lab
September 2020	Fresh students will be recruited from CRSP, ESP and Honors Scholars to continue with training that will act as mentors to other students.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
October 2020	Training will continue by faculty with extraction of data by senior and junior AAS students.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
November 2020	Communication with various NYC hospitals and application to local anonymized patient data.	Clinical Instructors and Subhendra Sarkar
December 2020	Feedback and Evaluation of student works by college faculty and Lead Medical professionals from NYC hospitals.	Clinical Instructors and Subhendra Sarkar
January 2021	Collect data on activities; Evaluate outcomes; Submit Interim Report.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
February 2021	Continue with communication with various NYC hospitals and application to local anonymized patient data.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
March 2021	Engage students in data analyses with minimal supervision.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
April 2021	Continue with student engagement in data analyses without supervision; Faculty will assess student's work.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
May 2021	Continue with student engagement in data analyses without supervision; Faculty will assess student's work.	Subhendra Sarkar, Eric Lobel, Jodi-Ann Douglas
June 2021	Analyses of data compared with anticipated outcomes;	Subhendra Sarkar,

	Submit final report	Evans Lespinasse

1. **Goal Staff:**

List the names and titles of all persons who will be assigned to and funded to address this Goal (add lines as necessary). Show the Full-Time Equivalent of each person's time devoted to this **Goal**. Indicate **Goal** salary, but do not include fringe benefits. Prepare and keep on file statements of the job qualification requirements for each vacant position, curriculum vitae for incumbents, and curriculum vitae for all consultants. Do not submit these documents with the *Application*.

Name	Title	Time (in FTE)	Salary
Subhendra Sarkar	Assoc. Professor	Tenure track	
Eric Lobel	Assist. Professor	Tenured	
Evans Lespinasse	Assist. Professor	Tenured	
Jodi-Ann Douglas	CLT	Tenured	

2. **Goal Budget:**

Costs shown below must also appear coded to this **Goal** on the FS-10 budget.

Category	Code	Goal Costs
Professional Salaries	15	$
Non-Professional Salaries	16	$
Purchased Services	40	$
Supplies and Materials	45	$
Travel Expenses	46	$
Employee Benefits	80	$
Indirect Costs	90	$
Minor Remodeling	30	$
Equipment	20	$85,000
Goal Total		$