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# **EXECUTIVE SUMMARY**

NightCore Mech is a company that provides software solutions to enterprises and build systems that provide value to business processes and analytics. The company has been around since 2019 and is located in Centurion East, Gauteng. We provide our clients with efficient solutions that aid in the growth and profitability of their enterprises. NightCore Mech consists of project managers, frontend and backend developers, SQL developers and database administrators, as well as prototyping developers and unit testers. Each member of the company has a variety of skills that contributes to knowing how to implement and design systems to address business requirements. Our project team is experienced and confident in our capabilities to perform a feasibility study on the design and implementation of software to identify academic misconduct committed by students at the NWU. The current requirements from the client (NWU Registrar), with Mr Zander Janse van Rensburg as the project overseeing manager, requires our company to design and build a modular workflow system that would assist lecturers in academics to identify and report academic misconduct cases according to standing NWU SOPS. The NWU Registrar must address plagiarism by evaluating each case individually and appointing experts to prepare technical reports. External subject matter experts (SMEs) are requested to examine the technical reports with an additional report that provides a deeper insight on the alleged plagiarism if the technical reports do not self-evidently emphasize the severity of the plagiarism. Manually comparing the allegedly plagiarized text in issue with the original text as evidence text is a requirement for the technical report, which can become difficult and lead to certain similarities being overlooked. The developers of NightCore Mech must adhere to standard project management methodologies and frameworks/bodies to plan and implement the lifecycle of this project, with a hybrid methodology between the Waterfall and Agile models or the suggested MPMM / Method 123 that will be implemented. The project team conducted some recent research on project management methodologies/frameworks and concluded that about 70% of projects fail due to time and budget constraints, as well as scope requirements and changes.

According to the requests of the bidder, the academic misconduct system should adhere to the following:

* The automation of comparisons of question text with evidence text and it must produce a similarity measure for the two texts (2019-2021). Through the use of a similarity metric, the software should reduce the time spent manually comparing two texts and generalizing the assessment of how severe the conjectured copying is. The software must combine text-matching skills with stylometric analytics to provide more accurate reports, better explain academic misbehaviour, and enable improved decision-making.
* The current software offers capabilities like a crude text comparison tool and a stylometric tool that does not perform optimally. The rudimentary text comparison tool is used to point out similarities between texts in technical reports, whereas the stylometric tool is underutilized due to its extensive possibilities in assisting the investigator in authorship recognition.
* The application should be standalone and terrestrial-based, being able to operate on multiple systems at once.
* The development method/methodology must adhere to a proper project management methodology. The MPMM / Method 123 or a hybrid Waterfall/Agile method is preferred.
* The project should conform to ISO 21500 standards firstly, secondly to PMBoK as well as the PRINCE2 Method and the HERMES method.
* The application should be able to detect text similarities between two sources as a minimum requirement.
* The application should have stylometric functionalities, the application should be able to detect original authorship of a document.
* Application should be memory-efficient and resource overhead should be avoided.
* Feedback reports should be based on stylometric performance metrics used to identify authorship and contract-cheating.
* Statistical analysis and knowledge should be crucial during the development phase.
* Instead of creating a database to persist data, the development team can create a local corpus of documents to compare and identify contract-cheating.

Based on the abovementioned requirements, the development team of NightCore Mech decided to develop a web-based application that facilitates ease of access and efficient integrations should be developed. The web application can be hosted on efficient cloud platforms such as Microsoft Azure or AWS. If it happens that hosting with the aforementioned platforms are not a feasible option, the development team will make the necessary arrangements with the NWU Registrar to host the application.

## FINANCIAL PROPOSAL

The NightCore Mech contractors will deliver all the requirements as requested by the client within 8 months at a total cost of R852 997.37 (VAT and disbursements included).

## BROAD-BASED BLACK ECONOMIC EMPOWERMENT

NightCore Mech is considered a Level 2 contributor with a 0% B-BBEE procurement level. Because the company earned less than R10 000 000 in the last financial year, the company qualifies for the B-BBEE Exempted Micro Enterprise BEE exemption.

# **BIDDER’S RESPONSE**

|  |  |
| --- | --- |
| **Criteria for Functional Evaluation** | **Research Solutions’ Response** |
| Details about the company's software development projects that the team has completed in the last 12 months. These initiatives will be reviewed, with information about the project sponsors provided in the section below. | **Entire team**  Completed a Vitality Web App that manages Active Rewards.  Completed a Social Media Web application in which users could share photos.  Completed a database system for a fire damage assessment system. |
| Detailed CVs of team members who will be directly involved in delivering the required services. The individuals must have prior experience in software development. | Every member’s full CV can be found in the addendums section. The following is a summary of their experience:  **Hanno Visagie**  3 years of coding experience in C#, C++, Java, CSS, HTML, SQL and ASP.NET. 3 years of experience in project management along with experience in systems analysis and design. 3 years of experience in decision support systems and business intelligence along with data analysis.  **Hano Strydom**  1 Years’ experience using ASP.Net, Maven, Spring  2 Years’ experience using Oracle & SQL  Worked on numerous projects  3 Years’ experience in programming (Python, Java, C#)  **Michael Rosin**  3 years of web design (back-end) using ASP.NET, C#, .NET and database management using Oracle, SQL Server, MS Access, MS SQL and implementing BI/ETL solution. 3 years of programming experience such as C#, C, C++, Python, Java, VB.NET and PHP.  **Annika du Toit**  3 - years information technology experience which includes coding in several languages. (Java, Python, C\C++, C#, ASP.NET).  2-year experience in database management (ORACLE).  **Llewelyn Anthony**  3 years of experience developing .NET desktop applications and ASP.NET MVC applications.  2 years of experience working with HTML5/CSS3/JavaScript and React Single-Page applications while using Git as a source-control tool.  5 years of experience as a SQL developer and a year of experience with Postgres.  A year’s experience worth of Python and NodeJS scripting.  Recent training on setting up Docker containers and execs.  Spent 2 years as a System analysis and software lifecycle mentor.  **Shené Boshoff**  3 years of programming and software development experience.  2 years of database management experience.  1 year of systems analysis experience. |
| A minimum of three (3) contactable references where the bidder has completed the software project. | Janet Liebenberg  Senior Lecturer  North-West University  Email: Janet.Liebenberg@nwu.ac.za  Tel No: +27 18 299 2536  Linda Redelinghuys  Lecturer  North-West University  Email: 10143882@nwu.ac.za  Tel No: +27 18 299 2531  Zander Boonzaaier  Lecturer  North-West University  Email: 28749995@student.g.nwu.ac.za |
| Based on the deliverables referred to in Section 5 above, a detailed project plan with timelines on how the assignment will be carried out including the risks that might be involved (including risk mitigation factors). | A full project plan and budget can be found in sections 10 and 11. The project will take place over 9 months with 8 phases. The phases are the following:   1. Scope definition and project planning 2. Problem analysis 3. Requirement analysis 4. Logical design 5. Decision analysis 6. Physical design and implementation 7. Testing 8. Installing and deployment |

# **ADVANTAGES OF USING NIGHTCORE MECH**

NightCore Mech is a respected private company that has learned and grown exponentially in the past three years. We happen to be a dream team of marketers, project managers, sales leaders, web designers and end-to-end eCommerce consultants who are experts in our industries. We specialize in converting Enterprise eCommerce business concepts into scalable, high-performing storefronts with robust, functional, and user-friendly solutions. We provide unique software solutions to organizations and individuals. Based on our own experience, we provide expert opinions, analysis, and suggestions to organizations or individuals. We are expert problem-solvers who offer solutions to overcome enterprise obstacles and improve performance.

The key advantages of hiring us as your e-commerce software consultant are as follows:

1. Perspective:

Simply receiving an outsider’s perspective on your company can aid in its growth. Our e-commerce software experts work with a variety of businesses, observing which ideas and approaches are feasible. Any company can become trapped in an echo chamber, which stifles innovation. We can assist you in re-imagining your business operations and marketing tactics, in addition to making software recommendations and managing e-commerce optimization on your site.

1. Improved customer experience:

We notice difficulties and propose solutions.

1. Streamlined workflow:

We can assess your company procedures and software, drawing on years of experience assisting other e-commerce businesses, to offer relevant solutions. Identifying areas of your company that could benefit from process automation can help you boost your profile.

1. A competitive edge:

We use an omnichannel strategy to e-commerce to help your company obtain or keep a competitive advantage. However, if your software isn’t integrated across channels, you risk missing out on sales or keeping clients waiting too long for a solution to arrive.

1. Branch out into new sales channels:

To generate visitors to your website, e-commerce success necessitates more than just SEO or paid search. You can utilize omnichannel marketing to reach out to customers in a variety of ways.

1. Expert evaluation:

Without re-platforming, an e-commerce software expert investigates numerous options for improving your site’s performance and functionality. Our professional e-commerce consultants concentrate on iterative, platform-agnostic enhancements to your applications. We won’t offer you a solution redesign or features you don’t need unless they provide value to your company. However, if your e-commerce software is at the end of its life cycle, an e-commerce expert can assist you with the re-platforming process.

# **BACKGROUND**

The Registrar of the North-West University is responsible for various administration tasks within the university. These tasks include record keeping of university student marks and a wide range of other supporting records and documents. The university’s view on information governance, in conjunction with Gartner’s definition, states that it views information governance as an overarching framework that provides an oversight of information and the processes by which it is generated, processed, and curated at the university.

The NWU Registrar is responsible for investigating various cases of alleged plagiarism committed by students, by inspecting cases individually and appointing experts to develop technical reports. The technical report currently involves manually comparing the alleged plagiarised text in question with the original text as evidence text, which can be tedious, and sometimes leads to similarities being overlooked.

If the technical reports fail to emphasise the severity of the alleged plagiarism, external subject matter experts may be requested to adjudicate the technical report with an additional report which further elaborates on the alleged plagiarism.

This tender, therefore calls for the design and development of a workflow system that will be able to facilitate academics in reporting academic misconduct cases according to standing NWU SOPs.

# **PROJECT TEAM**

|  |  |
| --- | --- |
|  | **Project Leader**  Hanno Visagie  Qualifications:   * BSc Information Technology (North-West University) * Current BSc (Hons) Computer Science and Information Systems student at North-West University |
| A person sitting on a boat  Description automatically generated with medium confidence | **Prototype Lead**  Hano Strydom  Qualifications:   * BSc Information Technology (North-West University) * Current BSc (Hons) Computer Science and Information Systems student at North-West University |
| A person standing in front of a body of water  Description automatically generated with medium confidence | **Back-end Lead**  Michael Rosin  Qualifications:   * BSc Information Technology (North-West University) * Current BSc (Hons) Computer Science and Information Systems student at North-West University |
|  | **Database Administrator**  Annika du Toit  Qualifications:   * BSc Information Technology (North-West University) * Current BSc (Hons) Computer Science and Information Systems student at North-West University |
| A person smiling for the camera  Description automatically generated with medium confidence | **Development Lead**  Llewellyn Anthony  Qualifications:   * BSc Information Technology (North-West University) * Current BSc (Hons) Computer Science and Information Systems student at North-West University * 2017 – 2018 QCTO National Certification Information Technology: Systems Development (SAQA ID 48872, NQF 5, 131 Credits). MCSD and BI. |
| A person smiling for the camera  Description automatically generated with medium confidence | **Hosting Platform Manager**  Shené Boshoff  Qualifications:   * BSc Information Technology (North-West University) * Current BSc (Hons) Computer Science and Information Systems student at North-West University |

# **UNDERSTANDING OF PROJECT BRIEF**

NightCore Mech will aim to integrate a software-based solution that will address the following business requirements:

* Design and develop a standalone terrestrial-based system that can be used by multiple systems at a time.
* The integration and use of project management method123 for designing and developing the project, or an alternative hybrid Waterfall/Agile method.
* Promote the significance of a simple and user-friendly interface.
* Eliminate unnecessary time wasted while using the software
* Increase the efficiency of staff members by delivering software that works.
* Compile documentation/user manuals for employees, in a category-based framework, which will act as a guide to avoid confusion.
* Work closely with stakeholders to ensure that all the requirements are met.
* Ensure concurrent use of the software.
* At the end of the project lifecycle, the developers at Nightcore Mech should be able to deliver a system that enables lecturers at the NWU to identify academic misconducts/contract-cheating.
* Feedback Reports should be provided by the system indicating text similarities between various sources to identify plagiarism on different levels conducted by a student.
* Application should be web-based
* Automation of feedback reports, with stylometric performance metrics visualised in order to detect contract-cheating and original authorship
* Side-by-side comparison of source document and evidence texts, without the need to manually identify text similarities
* Machine learning algorithms and stylometric analysis should be implemented to detect authorship and text similarities
* Text similarities is a minimum requirement of the application
* Use document metadata to support stylometric analysis
* A local corpus should be stored on a device to compare documents and identify contract-cheating and authorship
* Computing resources should be managed efficiently, and memory overhead should be avoided

The NightCore Mech team will revise the previous project to obtain some valuable insight into understanding what the exact requirements of the stakeholders are and what fell short of their expectations. Software solutions often fall short of the stakeholder expectations due to not satisfying the business requirements as a result of poor communication or failure to adhere to system design methodologies or best practices. To overcome these challenges, NightCore Mech utilises a holistic approach and strictly follows various methodologies that facilitate communication and collaboration throughout the various phases and environments of the project. Please refer to Figure 1 for more information



**Figure 1: Environments in the holistic approach to information and communications technology management**

Subsequently, NightCore Mech will follow this holistic approach to ensure that the best decisions regarding the development of software are chosen that will satisfy the requirements provided by stakeholders. To achieve this goal, NightCore Mech must identify which aspects of the software solution are of high importance by conducting an all-inclusive feasibility study that will identify crucial aspects and requirements in conjunction with the objectives established by stakeholders.

# **AIMS AND OBJECTIVES**

Nightcore mech facilitate academics in REPORTING ACADEMIC MISCONDUCT CASES ACCORDING TO STANDING NWU SOPS.

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**Objective 1: Comply to all relevant legislations and regulations indicated. This include but are not limited to the Legal Ramifications of Plagiarism, The Copyright Act, The NWU policy on plagiarism and other forms of academic misconduct.**

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**Objective 2: Improve the facilitation of academics in reporting academic misconduct cases within the NWU by monitoring the level of plagiarism committed by students.**

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**Objective 3: Upgrade current technological application to enhance the ability of the NWU to provide more accurate plagiarism reports.**

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**Objective 4: Introduce a technological solution that includes:**

* **Software that detects numerous ways of paraphrasing and automatically compare two similar texts.**
* **Understand academic misconduct better and provide an accurate report for each student to determine those suspected from cheating.**
* **Executable standalone terrestrial-based system working on multiple platforms.**
* **Have the capacity to update data on a daily basis.**
* **Database maintenance of all transactions over time.**
* **Adhere to a proper PM methodology.**

# **DELIVERABLES**

Nightcore mech facilitate academics in REPORTING ACADEMIC MISCONDUCT CASES ACCORDING TO STANDING NWU SOPS.

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**Deliverable 1: Include project purpose and scope, develop project plan, specify qualifications of team, determine roles and responsibilities, risk report, progress reports.**

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**Deliverable 2: Budget Analysis of proposed project solutions and requirements.**

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**Deliverable 3: Implement the proposed solution and report performance outcomes of technological solutions**

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**Deliverable 4: A document that lists all the technical requirements – this include but are not limited to:**

* **Software architecture design document**
* **User requirement document**
* **User manual and user training for technological solution**
* **Ensure that the customer owns all source codes, database scripts, content, and associated documentation.**

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**Deliverable 5: Management and the Board will be provided with a project completion report.**

# **METHODOLOGIES**

## Design Methodology to be utilised

NightCore Mech utilises a combination of Agile practices and the Waterfall software development methodology to effectively and efficiently develop software that satisfies all the client’s needs. The combined use of Agile and Waterfall will shorten the delivery time and provide the company with the ability to gather feedback during the early stages of development to ensure that the requirements are met successfully.

## A few reasons to use the Agile-Waterfall Hybrid model:

* Creates an environment for enhanced collaboration
* Decreases the time required for design, analysis and planning
* Clearly defines various project frames such as budget and time delivery
* Ensures software follows software standards

## Pros of a hybrid methodology model:

* Deliverables are agreed on by the client and developers at an early stage in the development lifecycle
* Easily track project progression as the entire scope of work is known in advance
* Encourages the project to be divided into smaller delivery segments, referred to as sprints, to allow easier development of a complex system and to provide an overview of progression.

The successful use and implementation of a hybrid design methodology will ensure a smooth design and development during the different stages of the development lifecycle.

## Project Management Methodology to be utilised

NightCore Mech utilises the project management methodology known as MPMM, which stands for Method123 Project Management Methodology. The use of this methodology is to ensure that best practise and standards are met in the workplace.

PMBOK, or Project Management Body of Knowledge, is a compilation of standard terminology and guidelines for project management that is utilised along with MPMM to further support the development lifecycle. MPMM and PBMOK integrate seamlessly as both methodologies attempt to utilise best practices.

PMBOK consists of five different process groups namely: Initiating, planning, execution, monitoring, controlling and closing. These process groups are integrated with each of the different elements of MPMM to boost the effectiveness of both methodologies.

Along with these two methodologies, NightCore Mech makes use of the ISO standard 21500:2012, which guides project management. ISO 21500:2012 provides high-level descriptions of concepts and processes which forms part of good practices in project management.

# **PROJECT PLAN**

The link below contains the project plan which has been done in excel.

<https://mega.nz/file/h1NwzDCT#tz5isgOkc2Xc3WYHvj1JegXXILFUO7RuaodZeoyGs_w>

# **BUDGET**

\*Any documents/page cost covered in miscellaneous

\*Presentations are virtually presented, held on Zoom.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Work Component** | | **Amount** |
| **1** | **Phase 1: Scope definition and Project planning** | |  |
| 1.1 | Project kick-off meeting | | R0.00 |
| 1.2 | Approach and methodology discussions | | R0.00 |
| 1.3 | Stakeholder meetings and member roles | | R0.00 |
| 1.4 | Project proposal and official scope | | R0.00 |
| 1.5 | Project Schedule | | R2 775.60 |
| 1.6 | Presentation of phase 1 | | R564.20 |
|  | **TOTAL** | | **R3339.80** |
| **2** | **Phase 2: Problem Analysis** | |  |
| 2.1 | Problem and goal documentation | | R0.00 |
| 2.2 | Reference Framework | | R0.00 |
| 2.3 | SWOT analysis | | R0.00 |
| 2.4 | Technical requirements | | R0.00 |
| 2.5 | API research | | R0.00 |
| 2.6 | Presentation of phase 2 | | R564.20 |
|  | **TOTAL** | | **R564.20** |
| **3** | **Phase 3: Requirements Analysis** | |  |
| 3.1 | Documenting and analysing requirements | | R0.00 |
| 3.2 | Functional and non-functional requirements | | R0.00 |
| 3.3 | Interview with stakeholder (Travel Costs) | | R4 800.00 |
| 3.4 | Feasibility study | | R140 000 |
| 3.5 | Presentation of phase 3 | | R564.20 |
|  | **TOTAL** | | **R145 364.20** |
| **4** | **Phase 4: Logical Design** | |  |
| 4.1 | Design conceptual model | | R0.00 |
| 4.2 | Map conceptual model to logical model | | R0.00 |
| 4.5 | Prototyping of model | | R15 046 |
| 4.4 | Validate logical model | | R0.00 |
| 4.5 | Presentation of prototype | | R4 800.00 |
| 4.6 | Presentation of phase 4 | | R564.20 |
|  | **TOTAL** | | **R20 410.20** |
| **5** | **Phase 5: Decision Analysis** | |  |
| 5.1 | Documentation of objectives and evaluation criteria | | R0.00 |
| 5.2 | Alternative methodologies and design research | | R0.00 |
| 5.3 | Risk assessment | | R0.00 |
| 5.4 | Evaluation and presentation of risk assessment | | R0.00 |
| 5.5 | Presentation of phase 5 | | R564.20 |
|  | **TOTAL** | | **R564.20** |
| **6** | **Phase 6: Physical design and implementation** | |  |
| 6.1 | Visual Studio Community | | R0.00 |
| 6.2 | SQL Server 2019 and SSMS 18 | | R0.00 |
| 6.3 | API ([plagiarismcheck.org](https://plagiarismcheck.org/)) | | R1800.00 |
| 6.4 | Hosting platform (Microsoft Azure / AWS) | | R84 000.00 |
| 6.6 | Network infrastructure (Stable Internet connection) | | R0.00 |
| 6.7 | Database design and implementation | | R0.00 |
| 6.8 | Application design (GUI and Back-end) | | R0.00 |
| 6.9 | Application Prototyping | | R0.00 |
| 6.10 | Demonstration of prototype | | R2 400.00 |
| 6.11 | Presentation of Phase 6 | | R564.20 |
|  | **TOTAL** | | **R88 764.20** |
|  | **Phase 7: Testing** | |  |
| 7.1 | Unit testing | | R0.00 |
| 7.2 | Building and testing of databases | | R0.00 |
| 7.2 | Presentation of Phase 7 | | R564.20 |
|  | **TOTAL** | | **R564.20** |
| **8** | **Phase 8: Installation and Deployment** | |  |
| 8.1 | Hardware:   * Computer   + i3 12100 GT 1030 Workstation   + ASUS PRIME B660M-K MB   + i3 12100 4x Cores CPU   + KLEVV CRAS XR 16GB 3600MhZ   + 512GB NVME SSD   + GeForce GT 1030 2GB GDDR5   + Standard Black case   + Standard 400W PSU   + 7.1 CH HD Sound * Monitor * Peripherals   + Keyboard   + Mouse   + Webcam   + Mic * UPS for workstation and Router | | R18 998  R5 998.00  R1 500.00  R4 998.00 |
| 8.2 | Final Application and implementation | | R0.00 |
| 8.3 | User Manual | | R0.00 |
| 8.4 | Application Maintenance | | R59 285.88 |
| 8.5 | Presentation of Phase 8 | | R564.20 |
|  | **TOTAL** | | **R91 344.10** |
|  | **SUB-TOTAL** | |  |
| **Hours** | **Contractor wage / tariff** | **R/Hour** | **Total** |
|  | Ricus Warmenhoven  - Project Manager | R1600.00 | R80 000.00 |
|  | Hanno Visagie - Chief Technical Officer  - Project Leader | R1666.00  R300.00 | R58 520.00  R13 500.00 |
|  | Hano Strydom - Front-end  - Prototype Lead | R1000.00  R600 | R30 000.00  R12 000.00 |
|  | Llewellyn Anthony  - Lead Developer  - Unit Testing | R924.00  R782.00 | R36 960.00  R15 640 |
|  | Michael Rosin - Back-end Lead  - Software Analyst | R1800.00  R440.00 | R72 000.00  R15 400.00 |
|  | Annika du Toit - SQL Developer  - Database Admin | R800.00  R600.00 | R24 000.00  R24 000.00 |
|  | Shené Boshoff - Back-end Developer  - Hosting Platform manager | R1400.00  R960.00 | R49 000.00  R14 400.00 |
|  | **TOTAL** | | **R445 420.00** |
|  | **Miscellaneous** | |  |
| 1 | Documentation printing | | R3500.00 |
|  | **TOTAL** | | **R3500.00** |
|  | **GRAND TOTAL** | | **R804 635.24** |

# **INVOICING SCHEDULE**

|  |  |  |
| --- | --- | --- |
| **Phases and Payment** | **Date** | **Amount (R)** |
| **Phase 1:** |  | **R3 339.80** |
| **Phase 2:** |  | **R564.20** |
| **Phase 3:** |  | **R145 364.20** |
| **Phase 4:** |  | **R20 410.20** |
| **Phase 5:** |  | **R564.20** |
| **Phase 6:** |  | **R88 764.20** |
| **Phase 7:** |  | **R564.20** |
| **Phase 8:** |  | **R91 344.10** |
| **Miscellaneous** |  | **R3500.00** |
|  |  |  |
| **Total** |  | **R354 415.10** |
| **VAT 15%** |  | **R53 162.27** |
|  |  |  |
| **Total Contractor tariff** |  | **R445 420.00** |
|  |  |  |
| **GRAND TOTAL** |  | **R852 997.37** |

## 12.1. Terms and Conditions

The terms and conditions are proposed by the subcontractors of NightCore Mech.

The tender response is based on the understanding of NightCore Mech regarding the scope and deliverables of the project. The subcontractors of NightCore Mech work at an hourly rate. The costs are based on deliverables stated in the budget at Section 11: Budget, from page 17. The budget could be subject to change if the clients alter the scope of the project or add additional requirements to the project. The altered budget should be approved by the client. The budget only contains items that the client is responsible for.

## 12.2. Purpose and Context

The client has fully disclosed the contract to NightCore Mech. The client will use the results of the contract work only for the purpose disclosed to NightCore Mech unless otherwise agreed. The client agrees to respect and value NightCore Mech's connection with its suppliers/specialists.

## 12.3. Validity of Submission

The cost estimate is valid for fourteen working days after the submission date.

## 12.4. Contractual Relationship

The parties agree that the Standard Terms and Conditions will govern any contractual agreement between them. When this proposal's approval is contingent on the signature of a Service Level Agreement (SLA), the Standard Terms and Conditions must be considered when creating the SLA. If acceptance of this proposal is contingent on both parties signing a Service Level Agreement (SLA), no work will be undertaken until both parties have signed the SLA.

## 12.5. Duration

The agreement becomes effective after both parties have signed it. The agreement will be valid until the completion date indicated in the scope of the contract work. This is subject to provisions that provide for earlier termination. If the agreement is terminated, the clauses relating to intellectual property and confidentiality will remain in effect.

## 12.6. Client’s Responsibility

Individual full briefings will be provided by client representatives, only by appointment, and access to necessary documents, personnel, and facilities will be permitted.

The customer will provide NightCore Mech with all paperwork and other material (source code) that could be useful in developing the new system.

The client will make their facilities available to NightCore Mech at no cost.

Given the cooperative governance, identified stakeholders should work together. The procedure will be maintained once a chance to engage has been provided and a constructive response has not been obtained promptly.

Comments on draft papers and findings will be delivered to the client within a period that is mutually agreed upon, but not more than seven days.

Draft reports will be given to the client directly, who will receive one set of responses from the bidder. The bidder will include the responses in their final submission and send them to the appropriate authority. Responses have to be received within a week.

## 12.7. Invoicing and payment

NightCore Mech will produce the invoices, and payment will be made directly to them.

Each invoice will be accompanied by proper paperwork for payment.

Within 30 days of receipt of invoices, all accounts will be settled. Interest will be charged at the banking rates set by NightCore Mech.

All sums due under the agreement must be paid by the due date specified in the agreement, or within thirty (30) days after the date of invoice issuance if an invoice is required. Interest will be charged on balances that are past due at prime plus 2%. (2 per cent).

## 12.8. Risk

Intellectual property given to NightCore Mech by or on behalf of the Client according to the agreement will be received, retained, and used at the owner's risk. Unless otherwise specified in the agreement, intellectual property becomes the property of NightCore Mech upon the termination of the agreement.

## 12.9. Confidentiality and publication

All information disclosed to each other during the term of the agreement regarding or arising from the contract work shall be treated as strictly confidential, and the Parties shall not disclose any such information to third parties without each other's written approval, which consent shall not be withheld unreasonably. Consent may not be delayed for longer than two years when the NWU publishes for scholarly purposes. The Parties are not permitted to postpone the submission and examination of theses and dissertations, as well as the conferral of degrees.

## 12.10. Liability

* 1. The Client indemnifies NightCore Mech, and NightCore Mech indemnifies the Client, against any claims that may arise because of the other's negligent act or omission, or non-compliance with any element of the agreement throughout the course and scope of contract work.
  2. Any claim for damages against NightCore Mech based on the agreement is limited to the lesser of the contract price or the amount paid by the Client to NightCore Mech in respect of contract work performed in accordance with the Agreement.

## 12.11. Intellectual property

Unless otherwise indicated in the agreement, intellectual property arising from contract work can be transferred from the Registrar on the terms of an agreement previously signed by the University and NightCore Mech.

## 12.12. Breach

If either party breaches its obligations under the agreement and fails to remedy the breach within seven days of receiving written notice requiring it to do so, the other Party shall have the right, at its option but without prejudice to any other or additional rights or remedies, to cancel the agreement.

## 12.13. Termination

Both parties may mutually choose to dissolve the arrangement. If the client terminates the project for any reason, or by mutual agreement, all direct expenses and professional fees will be billed up to and including the project's termination date.

## 12.13. Waiver

No leniency or exemptions granted to the other party, or a party's failure to exercise its rights as a result of a breach of the agreement, will affect the rights of the first-mentioned party, nor will it be hindered from exercising those rights.

## 12.14. Total Agreement and Amendments

The agreement represents the parties' entire agreement, including any additional restrictions, proposals, or pledges, whether verbal or written. Unless reduced to writing and signed by both parties, no modifications to the agreement will have any validity or effect.

## 12.15. Governing Law

The Republic of South Africa's laws will govern the agreement and will be used to interpret it.

## 12.16. Domicilia Citande et Exencutandi and Notice

For all purposes of and in connection with the agreement, the parties choose the addresses mentioned therein or such other address as may be communicated in writing by one party to the other as their domicilia citandi et executandi. Any notice required by the agreement must be delivered to the applicable party at its domicilium in writing.

## 12.17. Precedence

If these General Conditions and any term or condition in the agreement conflict, the latter will take precedence.

# **RELEVANT EXPERIENCE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Client Name** | **Brief Description** | **Timeframe** | **Members** |
| Janet Liebenberg | Lecturer Leave Day repayment system | 2020: March to April | Hanno Visagie  Michael Rosin  Llewellyn Anthony  Hano Strydom  Annika du Toit  Shené Boshoff |
| Linda Redelinghuis | ATLAS Courier System | 2020: Feb - October | Hanno Visagie  Michael Rosin  Llewellyn Anthony  Hano Strydom  Annika du Toit  Shené Boshoff |
| Rodney Sebopelo | FNAS System/Database | 2021: June - July | Hanno Visagie  Michael Rosin  Llewellyn Anthony  Hano Strydom  Annika du Toit  Shené Boshoff |
| Zander Boonzaaier | Vitality Web App that manages Active Rewards | 2021: August - October | Hanno Visagie  Michael Rosin  Llewellyn Anthony  Hano Strydom  Annika du Toit  Shené Boshoff |
| Zander Boonzaaier | Social Media Web application | 2021: November - November | Hanno Visagie  Michael Rosin  Llewellyn Anthony  Hano Strydom  Annika du Toit  Shené Boshoff |

# **CONTACT DETAILS OF BIDDER**

|  |  |
| --- | --- |
|  | **Zander Janse van Rensburg:**  **Senior Client Representative Agent**  **Office: 018 991332**  **Email: Zander.JanseVanRensburg@nwu.ac.za** |
| A person smiling for the camera  Description automatically generated with medium confidence | **Prof. Neels Kruger:**  **Teaching & Research Focus: IT Management, IT Governance and Knowledge Management at NWU**  **Office: 018 299 2533**  **Email: Neels.Kruger@nwu.ac.za** |

# **ANNEXURE A - CURRICULUM VITAE OF PROJECT MANAGEMENT TEAM**

Llewellyn Anthony:

<https://mega.nz/file/7TZVzBhQ#CbzPHlfV6oLVODK3PrFoFbckQ3tttuKEzYVEeAAFRVk>

Michael Rosin:

<https://drive.google.com/file/d/1_X8QP_H3RFPiL_7yLLWG2OJYNyVxZGPm/view?usp=sharing>

Shené Boshoff:

<https://drive.google.com/file/d/1ciFxdNJw5qj4mSuX9XcG7c0eXrpRto0_/view?usp=sharing>

Hano Strydom

<https://tinyurl.com/HanoStrydomCV>

Annika du Toit

<https://drive.google.com/file/d/1J9Y7Y3yHzVcm6p6LROYVasL_38KFoiet/view?usp=sharing>

Hanno Visagie

<https://drive.google.com/file/d/1456gNARcK6MxcMuv1W0mW8DvSSM6JylD/view?usp=sharing>

# **ANNEXURE B – PROJECT MANAGEMENT**

# **Work Breakdown Structure**

## Phases

## Activities

### **Initiation Phase**

### **Planning Phase**

### **Execution Phase**

### **Project Review/Project Closure Phase**

### **Maintenance Phase**

## Tasks

### **Initiation Phase**

### **Planning Phase**

### **Execution Phase**

### **Project Review/Project Closure Phase**

### **Maintenance Phase**

## Milestones

## Effort

# **Project Plan**

## Schedule

## Dependencies

## Assumptions

## Constraints

# **Project Scope and Goals**

# **Deliverables**

## Documentation Oriented Deliverables

## Secondary Documentation Deliverables

## Primary Deliverable

## Secondary Deliverables

### **User Manuals**

### **User Training**

## Stakeholders

# **Critical Success Factors**

The success of a project is determined by several things. The project will be doomed if the team fails to adhere to any one of these factors. The following list attempts to include all essential success criteria.

|  |  |
| --- | --- |
| **Critical success factor** | **Description** |
| Budget | The project budget should be less than the planned budget for the project to be successful. |
| Schedule | The project team should strive to finish the project on time. |
| Stakeholder satisfaction | The end product must satisfy the stakeholder. This can only happen when the project team and the stakeholder interact regularly. |
| Stakeholder time constraints | The project is finished according to the stakeholder's specified timeline. |
| Scope | The project's specified scope should not be modified unless the stakeholder is consulted. |
| Deliverable is on time | The client receives the final version of the deliverable on time. |
| Deliverable quality | The client should be pleased with the project’s quality. |
| Quality standards | The final product's quality is on par with the predetermined quality. |
| Minimum performance specification | The product can run on the client's devices, or it can run with minimal requirements if the client's devices aren't specified. |
| End-user satisfaction | The end-user must use the deliverable and be satisfied with the way it performs. |
| Stakeholder accepts schedule changes | A new schedule must be produced and presented to the stakeholder if any schedule modifications would affect the delivery of the final product. The revised schedule must coincide with the plans of the stakeholders for them to accept it. |
| Stakeholder accepts budget changes | If the budget changes, the stakeholders must be informed, and the team and stakeholders must agree on the new budget. |
| Environment disruptions | To avoid external influence on the project, the working environment must be safe and secure. Precautions should be taken to guarantee that there are no internal interruptions. |
| Major risks do not occur | To avoid big threats from occurring, the environment is adequately safeguarded. |
| Major risks are mitigated | Risks are identified and avoided before they occur. |
| Major risks are well managed | When severe risks do arise, they are carefully addressed and controlled to ensure that they do not jeopardise the project's vital components, such as the team or the devices on which the project is stored. |

# **Risk Plan**

Only a broad range of potential risks will be considered. Because it is impossible to establish a risk strategy for every potential project risk, only the risks that influence the important success elements will be included. The following table assumes the likelihood and impact of the hazards. Because of the nature of the problem, determining the probability and effect of the following risks is extremely challenging, as they may differ for each project. The ratings are on a scale from 1 to 10, with 1 being the lowest and 10 the highest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Risk description | Probability (1-10) | Impact (1-10) | Priority (1-10) | Triggers | Response plan |
| Overspending | 4 | 10 | 10 | Budget items are more expensive than anticipated. | Follow the budget precisely to avoid unnecessary spending. |
| Behind schedule or schedule changes | 7 | 10 | 10 | The project work takes longer than expected or there are changes to the schedule. | Ask the stakeholder for an extended due date. |
| Stakeholder is unsatisfied | 3 | 8 | 9 | The stakeholder is unsatisfied with the deliverable. | Have regular meetings with the stakeholder to receive feedback. |
| Scope creeping | 5 | 7 | 6 | The project scope is changed or increased. | Any changes to the scope should be approved by every team member and stakeholder before they can be implemented. |
| End-user is not satisfied | 3 | 8 | 5 | The end-user is unsatisfied with the deliverable and refuses to use it. | Provide training sessions and a user manual for the end-user. Take note of any feedback the end-user has to improve on the deliverable. |
| Budget changes | 2 | 10 | 4 | The stakeholder changes the budget. | Working with a modular plan will ensure that the budget plans do not interfere with the work that has already been completed. |
| Safety risks | 1 | 4 | 4 | The working environment is hazardous, and accidents might occur, disrupting the schedule. | Check the workplace for any potential health and safety hazards. |
| Bad quality control | 3 | 9 | 8 | The project quality is not monitored during the development of the project. | Do regular quality tests. |
| Bad relationship with the stakeholder | 4 | 6 | 7 | The stakeholder is unsatisfied with the project team, which could mean they are unsatisfied with the deliverable. | Communicate with the stakeholder frequently and attempt to keep them satisfied. |

# **Project Plan Gantt Chart**

# **Quality Plan**

# **Financial Plan**

## Labour

## Equipment

## Schedule

## Assumptions

## Financial Processes

## Activities

## Roles

## Documents

# **Procurement Plan**

## Procurement Requirements

## Requirements

## Market Research

## Schedule

## Assumptions

## Constraints

## Activities

## Roles

# **Resource Plan**

## Labour

## Equipment

## Assumptions

## Constraints

# **Communication Plan**

## Stakeholder List

## Stakeholder Requirements

## Assumptions

## Constraints

## Activities

## Roles

## Methods, Documents and Technology

# **Appendix C: Nightcore Mech Meeting Minutes**